

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

SECOND SESSION

ON

H.R. 6329/S. 3026

AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF DEFENSE FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1985, AND FOR OTHER PURPOSES

PART 2—(Pages 1-655)

Acquisition Programs
Aircraft Research, Development, and Acquisition
Army Modernization
Research, Development and Acquisition
Review of Navy Shipbuilding and Overhaul Programs

Printed for the use of the Committee on Appropriations



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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

THURSDAY, MARCH 15, 1984

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:03 a.m., in room 192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Andrews, Kasten, D'Amato, and Rudman.

DEPARTMENT OF DEFENSE

UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

STATEMENT OF MS. MARY ANN GILLECE, DEPUTY UNDER SECRETARY
OF DEFENSE (ACQUISITION MANAGEMENT), OFFICE OF THE UNDER
SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

ACQUISITION PROGRAMS

BUDGET REQUEST

Senator RUDMAN [presiding]. The subcommittee will come to order.

I will open the hearing. The chairman is delayed with leadership responsibilities this morning, and he will be along at some point in our hearing.

This is time scheduled to continue our overview of the Defense Department's acquisition program, looking today at the specific request for spares, repair parts, and acquisition improvement initiatives and related policy implications, to include the Department's proposed revisions in implementation of the warrantee language in last year's bill.

The Department's request for spares and repair parts has grown from \$8.7 billion in 1982 to \$12 billion in 1985, a 37-percent real increase. This increase has kept spares funding at about 10 percent of the procurement accounts and stock funds, which enjoyed some of the largest growth in the Federal budget.

OVERPRICING OF SPARE PARTS

At the same time, several problems have surfaced with spare parts overpricing. The fact that these problems have been discovered in large part by the Department does not make them any more acceptable.

Our interest today is to learn about the Department's corrective measures for these problems and procedural reforms to the acquisition process.

Our principal witness today is Ms. Mary Ann Gilleece, Deputy Under Secretary of Defense for Acquisition Management.

Before proceeding with your statement this morning, Ms. Gilleece, if you would introduce those with you, it would be appreciated. All statements will be incorporated into the record as if read, and you may summarize.

INTRODUCTION OF ASSOCIATES

Ms. GILLEECE. Thank you, Senator.

Accompanying me today is Gen. David Stallings of the Department of the Army; Ira Kemp of the Department of the Air Force; Adm. Andrew Giordano of the Navy; and Vice Adm. Eugene Grinstead of the Defense Logistics Agency.

Mr. Chairman, if I might, I will summarize my statement. Then I would ask if it could be possible for each of the members of this panel to be able to address four of the spares issues: competition, breakout, refunds, and training. They will be brief, if you would be pleased to hear them.

Senator RUDMAN. What would the approximate length of each of those statements be in summary form?

Ms. GILLEECE. At your pleasure, I would speak only 2 or 3 minutes and ask them to do the same.

Senator RUDMAN. That would be fine.

I know that my colleagues have other committee hearings this morning and are here because there are particular issues which they wish to address.

Why don't we proceed in that way.

Ms. GILLEECE. Thank you, sir.

The last time we appeared before this subcommittee the Secretary of Defense had just issued his 10-point program memorandum on spare parts procurement.

EXECUTIVE DIRECTIVE

Subsequent to that appearance, as I am sure you are aware, the Secretary of Defense issued a more specific directive on August 29, 1983 and I would like to provide that for the record, Mr. Chairman.

[The information follows:]



THE SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

29 AUG 1983

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
 CHAIRMAN OF THE JOINT CHIEFS OF STAFF
 UNDER SECRETARIES OF DEFENSE
 ASSISTANT SECRETARIES OF DEFENSE
 GENERAL COUNSEL
 INSPECTOR GENERAL
 ASSISTANTS TO THE SECRETARY OF DEFENSE
 DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Spare Parts Acquisition

My memorandum of July 25, 1983, announced a ten point program on spare parts procurement. Procurement, however, is but one facet of the problem. While the focus of immediate attention, other aspects of the spare parts total acquisition process must get equal scrutiny. Improvement in all areas is essential. While this memorandum deals primarily with acquisition, attention next will be focused on the requirements process, the authorization and appropriation process, and the way we manage readiness and support.

I am resolved that the Department of Defense act decisively. Nothing short of our full management capability and technical expertise must be applied to this challenge. Our credibility before the Congress and the public is at stake. Accordingly, I am now directing the additional actions set forth below.

In some cases I have designated precise milestone dates. This is addressed in the enclosure, as is further discussion of selected actions. I am asking the Deputy Secretary of Defense, as Chairman of the Defense Council on Integrity and Management Improvement, to take the lead in providing overall guidance and coordinating your efforts. I expect him to monitor our progress.

Near-Term Actions (within 90 days)

- o Provide resources to induce desirable breakout, effective competitive procurement, and improved pricing in the acquisition of spare parts.
- o Apply the DoD Parts Control Program to enhance competition. The optimum use of standard military parts or commercially available parts in development of new systems will be mandatory.
- o Accelerate plans for acquisition of computer hardware and software to assist parts control personnel.
- o Institute action to identify disparities in spare parts prices within and among various procuring activities.
- o Employ value engineering to investigate spare parts where cost or price exceeds intrinsic value.
- o Assign more engineering resources to review new reprourement data packages for adequacy.
- o Develop and test a procedure to make breakout of spare parts a factor in source selection for new major systems. Develop new incentive arrangements to reward contractors for cost savings generated by their efforts.
- o Negotiate contract data provisions which, as appropriate, reduce contractors' proprietary rights in data. A DAR deviation is approved for this purpose.
- o Designate acquisition of spare parts and reprourement data as an agenda item in Acquisition Strategy Panels, Advance Acquisition Plans, and Acquisition Review Councils.

- o Revise performance evaluation factors for acquisition and logistics managers. Include emphasis on spare parts pricing, breakout, competition, and value engineering accomplishments.
- o Implement DAR Supplement No. 6, "Replenishment Spare Parts Breakout Program" upon receipt.
- o Consider in all contracts, as appropriate, the Government's right and ability to breakout and procure competitively spare parts.
- o Discourage use of government specifications and contractor proposed engineering designs that inhibit subsequent competitive procurement of spare parts.
- o Continue action on my "Ten-Point" Program to insure that prices paid for all spare parts are fair and reasonable.
- o Pursue appropriate refunds or other recoupments vigorously following any audit or other disclosure of incorrect pricing or overcharge.
- o Review existing contracts to fully address any and all opportunities for improved pricing of spare parts, including breakout and competition.
- o Instruct acquisition personnel to challenge any procurement action for spare parts where estimated or negotiated price appears unrelated to intrinsic value.

Mid-Term Actions (within 180 days)

- o Reexamine existing policy on patent and data rights arising under government funded IR&D.
- o Expand training curricula to insure proper emphasis, understanding, and technical skill level for all personnel engaged in the acquisition of spare parts.
- o Assign special task forces to review existing reprourement data packages for spare parts with high annual buy/quantity values.
- o Evaluate and make recommendations for changes to existing authorization, appropriation, apportionment, budgeting, and financial management practices, and regulations pertaining to acquisition of spares.
- o Pursue with appropriate Congressional Committees and their staffs the merit of a two-year authorization for acquisition of replenishment spare parts and consumables.
- o Insist upon contract terms and conditions in all future acquisitions that afford more equitable treatment and provide for greater assurance of fair and reasonable prices.

Long-Term Actions

- o Automate data repositories to improve the acquisition, storage, update, and retrieval of reprourement and technical data.
- o Evaluate and assess accomplishments under the near- and mid-term actions for additional policy direction, as appropriate.

I am aware of the burdens these actions impose upon you and your staffs. However, we cannot defer action until such time as additional resources might be authorized and become available. Your full cooperation is appreciated.

Joseph W. Kimbarger

OPTIMIZE USE OF STANDARD MILITARY PARTS OR COMMERCIALY
AVAILABLE PARTS IN DEVELOPMENT OF NEW SYSTEMS

The DoD Parts Control Program promotes use of military preferred standard piece-parts during engineering design, development, production, or modification of equipments and major weapon systems. The program fosters standardization, which leads to greater demand for standard parts, reduction in varieties of parts in inventory, resultant increased production runs, and competition through multiple sourcing. It is accomplished through the engineering review of non-standard commercial parts and recommended preferred standard item replacements. DoDI 4120.19, Parts Control Program (PCP), is required in contracts for major weapon systems, end items of equipment where logistics support is required, and in which acquisition managers foresee appreciable life-cycle cost savings.

I am directing action to require mandatory application of the DoD Parts Control Program (at the present time approximately 40 percent of weapon system contracts are using the program on a voluntary basis). DoDI 4120.19 shall be revised to reflect the change from a voluntary to a mandatory program.

DLA should proceed with plans for acquisition of computer hardware/software to assist parts control personnel to achieve real time processing. Submission of the DLA plans for accomplishment is directed within 60 days.

GIVE ACQUISITION OF
SPARE PARTS THE NECESSARY ATTENTION

On August 2, 1983 I issued a revised regulation (DAR Supplement No. 6) dealing with the breakout of spare parts. It provides procedures for screening requirements for replenishment spare parts to break them away from systems contractors for the purpose of buying them competitively or from the actual manufacturer (breakout). The regulation enhances the cost saving objective of breakout, contains substantive revisions of a number of procedures, and incorporates features that increase the utility of resources devoted to the screening process. You will insure that your personnel immediately implement the designed purpose of this regulation as a matter of highest priority.

USE VALUE ENGINEERING TO INVESTIGATE PARTS WHERE
COST EXCEEDS INTRINSIC VALUE

The objective of Value Engineering (VE) is to identify more cost effective alternatives. An effective spare parts value engineering program must include procedures to identify those spares whose price is excessive and appropriate action to reduce unnecessary cost. Accordingly, each DoD component will:

- o Within 60 days institute at each spares buying activity procedures to "flag" price disparities in spare part contracts.
- o Assign adequate value engineering resources to review spares purchases and reduce excesses. Use ad hoc government VE teams, contract VE services, DoD personnel who currently have VE as a primary or collateral responsibility, and contract teams funded by the VE program clause of the DAR.
- o Revise the current Value Engineering Incentive DAR clause for all supply and service contracts of \$100,000 or more to mandate its use in contracts less than \$100,000 for spare parts. Effective immediately, contracts for spare parts and repair kits of \$25,000 or more for other than standard commercial parts will contain a VE incentive clause.

INSURE THAT PRICES PAID FOR PARTS ARE FAIR AND REASONABLE

Offer incentives to employees to increase competitive bidding and reward those who vigorously pursue cost savings. This requires beneficial suggestion/VE award programs specifically tailored to the acquisition of spare parts.

Take stern disciplinary action with those employees engaged in the acquisition process who are negligent in implementing our procedures. Performance in this area should be a scored evaluation factor in performance ratings.

Alert defense contractors to the seriousness of the problem and of our firm intention to keep prices under control. I expect implementation of an ongoing management procedure to insure continuing high level attention to this area. Action shall be taken to insure the high-level contractor management mirrors this effort.

Task Competition Advocates in all DoD components to challenge spares orders not made competitively or which appear to be excessively priced. Competition advocates must be provided sufficient authority to intervene directly in instances where policy is not being appropriately implemented. A draft DoD directive on competition advocates will be prepared and distributed for comment within 90 days.

ACQUIRE REPROCUREMENT TECHNICAL DATA UNENCUMBERED BY NEEDLESS
OR IMPROPER PROPRIETARY RESTRICTIONS

As part of the evaluation and source selection process, specific consideration will be given to breakout and competitive procurement of spare parts. Our ability, including cost to the Government, to acquire reprocurement data packages with unlimited rights thereto (given the nature and propriety of the prospective contractors' asserted rights) will be evaluated.

Examine and advise me of your views as to existing policy dealing with the rights accruing to the Government under IR&D.

Negotiate firm dates in new contracts by which "unrestricted" use of data encumbered by the contractor's background patents and/or data rights for data initially developed at its expenses will be available. Particular attention should be given to those cases where the Government has borne the major cost of development.

AUTOMATE DATA REPOSITORIES TO IMPROVE THE ACQUISITION, STORAGE,
AND RETRIEVAL OF TECHNICAL DATA

With state-of-the-art technology, the automated data repositories can:

- o Eliminate bottlenecks in paper/microfilm manual identification, retrieval, and individual reproduction operations.
- o Reduce the cost of repository operations and the cost of data.
- o Permit direct interface with industry and among the Services in computer-aided design (CAD) and computer aid manufacturing (CAM) systems.
- o Provide for computerized review and inspection, indexing, and verification of "rights in data" claims.
- o Provide for timely identification of the appropriate data and its subsequent delivery to the user or buyer via telecommunications.

The Services will support and fund the ongoing Tri-Service/Joint Committee on Printing effort to acquire and install prototype repositories with a target date for completion of FY 1987. The standard system specification has been defined. Plans to be supported by the Services include, subject to availability of funds:

- o Army. Installation at MICOM and CECOM in September 1984.
- o Air Force. Complement Army contract, and fund in FY 1984 for one system.
- o Navy. Installation at NPFC in September 1984. Approve of the NAVAIR system for implementation at the NAVAIR central repository.

ELIMINATE DISINCENTIVES ON INDUSTRY TO FACILITATE
BREAKOUT AND COMPETITION OF SPARE PARTS

What we do up front in the development of major systems and in obtaining adequate reprourement technical data at the outset of production profoundly influences our ability to break out spare parts for procurement from other sources. Clearly lacking is a motivational response needed from our major systems developers. Absent that, we will have simply modest improvement with no assurance that such improvement will continue. Therefore, we are considering two new efforts.

First, we must make breakout of spare parts a factor in the source selection of a major weapons systems developer. Second, we must couple this with incentive arrangements that provide the contractor a share in cost savings generated by his efforts. Such procedures will be developed for test at the earliest practicable date. These procedures have the potential of assuring long-term application and benefit without the need to increase significantly manpower resources, without substantially adding to acquisition costs, and without unduly prolonging procurement leadtime.

Following is a draft concept paper that discusses this in greater detail. I wish your constructive comments within 30 days with the full intention of designating a joint service and DLA task group to develop a comprehensive test program within 90 days. Full-scale implementation will be accomplished following evaluation.

"DRAFT" CONCEPT PAPER

SUBJECT: Enhancing (1) breakout and (2) competitive solicitation and procurement of both initial and replenishment spare parts for new major systems

PROBLEM: The cost of acquiring the subject parts is increased by any one or a combination of the following:

- o existing in-house "cost models" that distort prices paid for spare parts by inappropriately or disproportionately allocating the prime contractor's costs for engineering, manufacturing, material handling, G&A, and plant-wide variances as well as associated overhead charges and profit
- o tiering of vendor acquired spare part prices merely flowing through the prime contractor with the latter's overhead and profit
- o absence of effective competition for subcontracted items and vendor furnished parts
- o proprietary rights, data right, and patent right limitations
- o incomplete, inaccurate, and/or obsolete reprourement data packages

- o insufficient procurement leadtime
- o dated and/or incomplete knowledge of the industrial base
- o institutional biases on the part of industry and government
- o incomplete and/or inadequate "make-or-buy" program reviews
- o disincentives on contractors to break out vendor acquired parts for direct acquisition by the government
- o lack of positive incentives on contractors to break out vendor acquired parts for direct acquisition by the government
- o lack of government personnel resources with the appropriate skills and training to get the job done
- o lack of high level management attention in industry
- o lack of high level management attention in government
- o prior course of dealings, industry/trade practices, and tradition
- o late apportionment of fiscal year funds for O&M acquisition
- o incomplete, untimely, and inadequate acquisition planning
- o low volume buys
- o disproportionate emphasis on meeting operational requirements

DISCUSSION: The spare parts "problem" is not any one problem. It is many problems that vary in type, combination, and impact depending upon:

- o the point in time during the acquisition process when the issue is being addressed
- o the type, nature, and quantity of the spare parts at issue
- o the system that is being supported

There is no one solution. That is not to say, however, there is no solution. The problem area has to be broken down into functionally related components. There are:

- o problem(s) that are inbeing
- o problem(s) we are presently evolving
- o problem(s) that will arise in the future

This concept paper focuses primarily on how to avoid the problems in the future. There is some immediate transference possible, and that is encouraged.

ANALYSIS: Any conventional solution is invariably labor intensive. That makes it somewhat less than viable, irrespective of conceptual appeal. A solution to the problem is required that is:

- o not labor intensive in terms of government personnel
- o predisposed to alter in some meaningful way our traditional approaches
- o acceptable to industry, for the problem cannot be solved by the government alone
- o cost effective in a way that is readily apparent and demonstrable

- o easy to communicate to the acquisition work force, where the rubber hits the road
- o not so complex as to be difficult to comprehend or to implement
- o susceptible of being implemented within all of DoD with a high degree of uniformity so as to preserve the concept of "one face to industry"
- o not too costly, nor should it require substantial investments of program funds to initiate and/or accomplish
- o not contrary to the principle of decentralized management and the preservation of decisionmaking authority, flexibility, and discretion at the lowest possible level
- o financially beneficial to both industry and government

The solution dictates that it be approached early in the acquisition process while there is still effective competition to assure a reasonable degree of industry responsiveness and reasonable attendant costs. The techniques employed must be compatible with existing acquisition practices and require no new authorities, laws, or regulations. Additionally, it is at the earlier stages of the acquisition process where the leverage of any incentive is greatest because so much of the program is still prospective. The "work" must be accomplished by contractor personnel but not as "services." There must be on-going visibility by high level management in both industry and government. The rewards to industry must be immediate, near term, and long term; all three are required. The same holds true for the government. The rewards enjoyed must not be at the expense of otherwise realizable profits and/or incentive fees in a way that merely reapportions the profit pool. The payoff must be big to attract and to hold the continuing attention of all- including the Congress and the public. Lastly, implementation in the very near term should be possible.

SOLUTION: All basic tenets must be employed to be effective, but the quantitative measures should be assigned to, or reserved for, the discretion of decentralized management and planned on a case-by-case basis. The basic tenets are:

1. The competition leading to award of FSED for a major system should turn, in part, on the prospective prime contractor's technical and management proposals addressing such things as:
 - o Make-or-Buy Plan
 - o Engineering Design in terms of furthering utilization of commercially available components, non-proprietary items, competitively available vendor material, military standard parts
 - o Management Plan to facilitate:
 - early breakout
 - parallel competitive sources for vendor items
 - accomplishment of the aforementioned engineering design
 - review of technical data packages for completeness, suitability, currency, and relief from inappropriate proprietary restrictions
 - enhancement of the competitive vendor base and the establishment of new vendor sources during FSED and the early phases of initial productions
2. The prime contractor's additional engineering, design, and management effort to accomplish the objectives set forth in his proposal(s) for

this express purpose should be a separately priced line item in the pertinent FSED contract.

3. The instant FSED contract should provide for an Award Fee modeled on the "report card" concept. It should provide for an award fee determination panel composed of high levels of government management; periodic evaluations to influence prospective behavior; written critique by the Service Secretary to the CEO; the immediate payment of all award fee amounts earned; and no rights of appeal.
4. The instant FSED contract should provide for a separate Memorandum of Agreement (MOA) between the prime contractor and the government. It would be negotiated with all offerors while still in proposal evaluation and source selection. The purpose for the MOA is to get advance agreement on the amount of the royalty and/or the licensing fee to be included in selected vendor prices. The fee arrangement would be expressed as a percentage of the item price paid by the government. Then, should those vendors later be awarded a contract directly by the government, the agreed-upon fee (having been included in the price) would be paid to the prime contractor by the vendor. A licensing fee would be proper if contract effort involved utilization of the prime contractor's proprietary data; a royalty fee would be proper when the prime's proprietary data is not a factor. The MOA would prescribe the term of years within which the agreement would be in force and on whom it would be binding. Any fees paid pursuant thereto would be in the purchase price of the vendor item--hence, it would be borne by the user. However, care must be exercised to avoid payment of royalty fees for break out that would and should have been otherwise accomplished as part of the contractor's normal responsibilities.

CONCLUSION: The proposed solution offers an immediate incentive. It can influence and even prove a determinant in proposal evaluation and source selection for a major system. It focuses attention on the problem early on, before design is complete and a subcontractor/vendor matrix established. By directly funding the contractor's associated effort, it does not increase his overhead costs and also becomes a direct cost on which other overhead can be charged and profit earned. However, as a direct cost, it must be done and done in accordance with the contract's terms and conditions. It is subject to government oversight. The award fee offers a near-term incentive while focusing high level management attention on the effort. The licensing and/or royalty fee arrangement offers a long-term and continuing incentive to make the program succeed because it returns profits to the prime without any investment of capital or on-going utilization of production resources. The arrangement can also be flowed down. It eradicates by offset all the incentives presently in-place that inhibit breakout, competition, and contractor assistance. It employs practices well known to the contracting community both in the private and public sector. It need await no special approvals or authorities to be tested or implemented. It does not add to procurement leadtime and, in competition, it should add little or no cost to FSED.

RECOMMENDATION: Immediately develop a TEST PROGRAM leading to full-scale implementation. The initial resultant guidance should be expressed in no greater detail than policy direction as would be found in a Directive or an Instruction. At an appropriate time, suitable DAR coverage could be published.

MANAGEMENT ASPECTS OF SPARE PARTS PROGRAM

Ms. GILLEECE. The August 29, 1983, memorandum addresses very specific management aspects of the spare parts program: some near term, some mid-term, some long term, and some in a test mode.

There are specific directions to the services covering things such as breakout, competition, technical data, value engineering, personnel management—these kind of issues. I think a review of this document will show that the Department is, in fact, concentrating at the highest level on initiatives and the spare parts program. As I indicated, the services will, very specifically, define some of the things that they are doing.

OVERSIGHT RESPONSIBILITY

As far as the oversight responsibility of the Department, we are meeting every 2 weeks with the services to make absolutely sure that each and every one of the initiatives is being pursued, and also to make sure there is consistency in their implementation.

As part of my statement, I focused, to some extent, on the acquisition improvement program because we are aware of the committee's interest in improving the acquisition process.

As you know, those initiatives include six key management areas: Improving program stability, expanded multiyear procurement, more economic production rates, more realistic budgeting, improved support and readiness, as well as encouraging competition.

We provided the information to the committee even though, in fact, acquisition management does not have total responsibility or control over each of those; but we thought that you would be interested in some of the things that we have been able to accomplish.

IMPROVED USE OF WARRANTIES

Turning to the topic that is, of course, of concern to this committee, and as we have been trying to work with you toward accomplishing the outstanding goal that you have provided, I move now to the importance of warranties.

As we have consistently stated, and as I will state once again, the Department of Defense absolutely supports the use of warranties. There is no question that when warranties are utilized in the proper fashion, they improve the buys that we are able to make.

Last evening, Secretary Taft did sign the policy guidance which I now would like to make a part of the record. I would also suggest that the waiver of the cost reimbursement-type contract also be made a part of the record, if it pleases the chairman.

Senator RUDMAN. Those both will be made a part of the record. [The information follows:]



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

14 MAR 1984

MEMORANDUM FOR THE SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS OF DEFENSE AGENCIES

SUBJECT: Guaranty Policy Guidance

The attached policy guidance implements Section 794 of the Department of Defense Appropriation Act, FY 1984, which requires that written guaranties be obtained in procurement for weapon systems.

The requirement for guaranties for cost reimbursement-type contracts is waived, pursuant to Subsection 794(c) of the Department of Defense Appropriations Act, 1984, because the inclusion of guaranties in such contracts would not be cost effective.

This guidance is effective immediately. In our December 16, 1983, waiver letter we suggested documenting your use of the general waiver. I request you send a listing of those programs or their components for which you found it necessary to exercise waiver authority.

The policy guidance will be in effect until superseded or incorporated into the Defense Acquisition Regulation Supplement to the Federal Acquisition Regulation.

Immediate dissemination of this policy guidance to field activities is essential to avoid delay in implementation.

William H. Taft, IV
William H. Taft, IV

POLICY GUIDANCE

Section 794 of the Department of Defense Appropriations Act, 1984 requires that written guaranties be obtained in connection with the procurement of weapon systems. This guidance is issued to provide for implementation of Section 794. It sets forth the policy and procedures for requiring and obtaining such guaranties pursuant to the Act. Nothing herein precludes including in any such procurements additional warranties in accordance with Departmental regulations. To the extent this guidance may be inconsistent with the provisions of DAR 1-324, this policy guidance shall control. This is not intended to preclude or otherwise inhibit the use of provisions of DAR 1-324 in procurements not subject to this policy guidance.

1. For purposes of this guidance:

(a) "Weapon System" is equipment which, without substantial modification, is or can be used directly by armed forces to carry out combat missions. By way of illustration, the term includes but is not limited to bombers, fighter aircraft, attack helicopters, combat naval vessels, strategic and tactical missiles, tanks, combat vehicles, etc. The term does not include software, ordnance, related support equipment such as, ground handling equipment, training devices, test equipment and accessories thereto unless an effective guaranty for the weapon system would require the inclusion of such items.

(b) A "component" is an assembly or any combination of parts, sub-assemblies, and assemblies mounted together that is treated as a significant element of the weapon system in manufacture, assembly, maintenance, or overhaul. Spare parts, per se, are not deemed components unless otherwise fitting this definition.

(c) A "procurement" is a prime contract between the government and a contractor for production of a weapon system and/or components thereof. Where the principal purpose of the prime contract is research and development, it is not a "procurement" within the meaning of this policy guidance; however, if such a procurement also provides for production then such production is subject to this policy guidance.

(d) A "specified performance requirement" is any specifically delineated mandatory performance requirement in a procurement or in any other agreement relating to such procurement.

(e) "Conform" means designed and manufactured so as to be in accordance with the government's specified performance requirements.

(f) "Bear the cost of" means at no increase in contract price for fixed price type contracts, or no increase in ceiling price for fixed price incentive contracts.

2. This guidance applies only to contract awards made subsequent to March 14, 1984. For purposes of the application of this guidance to preexisting instruments:

(a) A modification to a contract to add additional quantities constitutes a new award.

(b) The exercise of a priced production option where no further definition or negotiation of terms is required does not constitute a new award.

(c) The notice to proceed with quantities after the first year quantity in a multi-year procurement does not constitute a new award.

(d) The placement of an order under a basic agreement or basic ordering agreement constitutes a new award.

(e) The definitization of an existing redeterminable contract does not constitute a new award.

(f) The definitization of a letter contract that includes the clause set forth in DAR 7-802.5 requiring definitization in accordance with law and

regulations in effect at the time of definitization shall include a guaranty in accordance with this guidance.

3. Except to the extent otherwise provided herein, all procurements shall contain a clause:

(a) Guarantying that the weapon system and each component thereof were designed and manufactured so as to conform to the government's specified performance requirements and that, at the time of delivery to the government, the weapon system and each component thereof are free from such defects in materials and workmanship as would cause the system to fail to conform to the government's specified performance requirements. At a minimum, all significant performance requirements that have been incorporated into the contract shall be specified as being subject to the guaranty.

(b) Guarantying that the contractor will bear the cost of all work and promptly repair or replace such parts as are necessary to achieve the required specified performance requirements and providing that if the contractor fails to repair or replace parts promptly as required by the contract, the contractor will reimburse the government for cost incurred by the government in procuring such parts from another source and for the cost of making or procuring necessary repairs. The guaranty required hereby does not cover liability for loss, damage or injury to third parties or consequential damages.

Research and development effort performed under the procurement shall not be required to be subject to the guaranty.

4. In contracts for weapon systems, there are two types of guaranties: One for performance to insure conformity of design and manufacture to specified performance requirements (as set forth above); and, one for freedom from all defects in materials and workmanship which would cause the system not to achieve the specified performance requirements. The latter is a separate and distinct guaranty provision which would attach to delivered end items under the weapon system contract for a specified period of time. These guaranties are not mutually exclusive and both will be contained within a single contract for a weapon system or components thereof.

5. The written guaranties called for herein pertaining to design and manufacture so as to conform to the government's specified performance requirements will generally be of either or both of two types:

(a) Where the specified performance requirement(s) is a test or demonstration and the requirement(s) is deemed to be satisfied upon the satisfactory completion of the specified test or demonstration, e.g., of a first production article, the guaranty shall provide that, in the event of a failure of a weapon system or component to complete satisfactorily the specified test or demonstration, the contractor shall promptly perform all design (subject to government approval) and manufacture work as necessary to conform to the government's specified performance requirements and to complete satisfactorily the specified test or demonstration, and the contractor shall bear the cost therefor.

(b) Where the specified performance requirement(s) consists of the operation of the system without designated failures for a specified period or interval, the guaranty shall, at a minimum, provide that, in the event of a failure of a weapon system or component thereof within the stipulated period to meet the designated performance requirement(s), the contractor shall promptly perform all work to (1) design (subject to government approval) and manufacture the system and each component thereof so as to conform to the government's specified performance requirements and/or (2) repair and/or replace such parts as necessary, to meet the specified performance requirements, and the contractor shall bear the costs of accomplishing such work.

6. The duration of the guaranties may be different within each procurement for workmanship and material defects and for the various specified performance requirements. In all cases, the duration of the guaranties shall be for reasonable periods of time and shall be long enough to cover the types of defects and nonconformances that are likely to occur.

7. A model clause that may be used in fixed price type contracts is attached. Where different types of requirements are present, tailored guaranty clauses may be written.

8. Performance requirements should be reviewed to assure that they are realistic and achievable and accurately reflect the needs for the weapon system. In the event it should be determined that a written guaranty at the weapon system level is not cost-effective or otherwise not in the interest of the national defense, the identification and examination of appropriate components of the weapon system for applicability of a written guaranty(s) is also required. This examination should include a review of individual performance parameters (such as durability) for application of a written guaranty if comprehensive coverage is determined to be infeasible.

9. During negotiation of the contract, each circumstance(s) that could have the effect of voiding the guaranty should be identified and specifically delineated in the contract. Contracting officers should not agree that any circumstance(s) will void the guaranty unless the relationship between the circumstance(s) and the performance requirements is direct and the circumstance(s) identified as voiding the guaranty is beyond the control of and not attributable to any fault of the contractor.

10. Guaranty costs must be identified and evaluated for cost effectiveness. It is permissible to limit a contractor's ultimate liability under a guaranty if such limitation is necessary to achieve a cost effective guaranty.

(a) In order to facilitate the identification of the cost of the guaranty, the cost of the guaranty shall be set forth either in the contract or in the contracting officer's documentation supporting the negotiations. If the guaranty is set forth as a separate line item in the contract, payment to the contractor for the guaranty shall be made on a pro-rata basis at the time of delivery of the contract end item covered by the guaranty.

(b) In determining whether use of a guaranty is cost effective to the government, the benefits to be derived from the guaranty must be related to the costs of the guaranty to the government. Guaranty costs arise from the contractor's charge for accepting the deferred liability created by the guaranty and from the government's administration and enforcement of the guaranty. In most cases, contractors will quote a higher price to provide the guaranty. Competition will be a major factor in the price quoted by the contractor to the government for the guaranty. In addition, the experience of the contractor in producing the item is another major factor in the cost of the guaranty since it may rely on an actuarial estimate to assess financial risk. As a further consideration, the estimated cost to the government for correction or replacement by the contractor, by another source, or by the government, in the absence of a guaranty, should be compared to the guaranty costs considered above.

(c) There are other factors which must be considered in determining whether the guaranty is cost effective such as any indirect costs to the Government necessary to maintain the guaranty in effect. For example, if certain spare parts must be purchased only from designated suppliers in order to keep the guaranty in effect, the estimate of the loss to the government attributable to this limitation on competition should be estimated. Such estimate should reflect the results of an assessment of the capability of the logistics system to support the weapon system being procured. By way of a second example, the effect on breakout and competitive procurement of weapon system components should be considered.

11. The waiver authority granted in Subsection 794(c) is hereby delegated to the Secretaries of the Army, Navy and Air Force and to the Directors of Defense agencies with authority to redelegate. Class waivers may be granted, where justified. With due regard for the concern noted by the Congress and with appreciation for the need of continuing high level management attention, redelegation of this authority should be made only to appropriate levels of command. A written record will be kept of each waiver granted, together with

supporting documentation, to meet the reporting requirements to the Congress. A waiver of the guaranty requirements, in whole or in part, must be:

(a) Supported by a written determination that the waiver is necessary in the interest of the national defense or would not be cost-effective.

(b) An intention to waive such requirements must be forwarded to the committees on Armed Services and Appropriations of the Senate and the House of Representatives in writing, including in the notice an explanation of the reasons for the waiver(s).

(c) Notification of all class waivers will be sent to the DoD Acquisition Executive.

12. In accordance with General Provision Section 794, Subsection (c) of the Department of Defense Appropriation Act, 1984, the requirement for guaranties in cost reimbursement-type contracts is waived.

13. This guidance is effective immediately.

GUARANTY

(a) Notwithstanding inspection and acceptance by the government of supplies furnished under this contract or any provision of this contract concerning the conclusiveness thereof, the contractor guarantees:

(1) for _____, that line item _____ and each component thereof are designed and manufactured so as to conform to the specified performance requirements of this contract and all other supplementary agreements relating to the production under this contract line item entered into by the United States and the contractor, and

(2) for _____, that line item _____ and each component thereof, at the time of delivery, are free from all defects in materials and workmanship which would cause the line item to fail to conform to the specified performance requirements of this contract and all other supplementary agreements relating to the production under this contract line item entered into by the United States and the contractor;

provided, however, that with respect to government-furnished property the contractor's guaranty shall extend only to proper installation so as not to degrade the government-furnished property's performance and/or reliability, unless the contractor performs some modification or other work on such property, in which case the contractor's guaranty shall extend to such modification or other work.

(b) In the event of a failure of line item _____ to meet the conditions specified in subparagraphs (a)(1) or (a)(2) above:

(1) the contractor shall promptly repair or replace such parts as are necessary to achieve the specified performance requirements, and the contractor shall bear the cost therefor, or

(2) if the contractor fails to repair or replace such parts promptly, as determined by the contracting officer, the contractor shall pay costs incurred by the government in procuring such parts from another source and in accomplishing the repair.

(c) The contractor shall prepare and furnish to the government data and reports applicable to any correction required under this clause (including revision and updating of all affected data called for under this contract) and the contractor shall bear the cost therefor.

(d) When items covered under the guaranty are returned to the contractor, in pursuance to this clause, the contractor will bear the transportation costs from the place of delivery specified in the contract (irrespective of the f.o.b. point or point of acceptance) to the contractor's plant and return.

• Specify a time period for duration of guaranty.

(e) If the government determines that it does not require repair or replacement of defective or nonconforming supplies, the government shall be entitled to an equitable adjustment in the price of such supplies.

(f) The contractor shall be notified in writing of any failure of line item _____ or any component thereof subject to the guaranty set forth in paragraph (a) above within _____ days after discovery of the failure. Upon election by the government of a remedy in accordance with paragraph (b) or (c) above, the contractor will, notwithstanding any disagreement regarding the guaranty, comply with such direction. In the event it is later determined that the failure was not subject to the guaranty set forth in paragraph (a) above, the contract price will be equitably adjusted.

(g) The guaranty provisions of this clause do not apply to combat damage and do not cover liability for loss, damage or injury to third parties or consequential damages.

(h) For purposes of this clause, the term "performance requirements" does not include performance characteristics that are described as goals or objectives.

(i) The rights and remedies of the Government provided in this clause are in addition to, and do not limit, any rights the government may have under any other clause of the contract. Disputes arising under this clause will be resolved in accordance with the clause of this contract entitled Disputes.

THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

14 MAR 1984

Honorable John G. Tower
Chairman, Committee on Armed Services
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

In accordance with section 794 of the Department of Defense Appropriation Act, 1984, (Pub. L. No. 98-212) I am notifying you of my intent to waive the requirement to include guaranties in cost reimbursement type contracts on the grounds that to include guaranties in such contracts would not be cost effective.

We have concluded that section 794 does not require the inclusion of guaranties in cost reimbursement type contracts. The contractor's obligation to perform under such contracts is based upon the Department's willingness to reimburse the cost incurred by the contractor to perform the work. The interdependence of these obligations results in requirements that are, for purposes of section 794, conditional rather than absolute. Section 794, as we read it, does not require that guaranties be included in contracts where the requirements are conditional in nature.

The inclusion of a guaranty in a cost reimbursement type contract would not be cost effective. The Department limits the use of cost reimbursement type contracts for the procurement of weapon systems to purchases where the uncertainties involved in contract performance are of such magnitude that cost of performance can not be estimated with sufficient reasonableness to permit use of any type of fixed price type contract. In such cases it is cost effective for the Department to pay only actual costs incurred rather than agreeing to a price, which by necessity would include contingencies to cover unforeseeable cost risks. By paying only the actual cost incurred, the Department avoids paying for contingencies that may never be realized. In these circumstances, where it would not be cost effective to agree on a fixed price type contract, it would not be cost effective for the same reasons to require a guaranty.

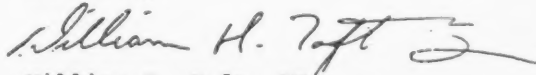
In addition, if guaranties were to be included in cost reimbursement type contracts, the contractor would have an incentive to incur excessive costs prior to delivery, which costs would be reimbursable, rather than incur guaranty costs after delivery that would not be reimbursable. This result would add to the cost effectiveness problem in cost reimbursement type contracts.

Accordingly, and to avoid any dispute over the applicability of section 794 to cost reimbursement type contracts, I have decided that any requirement in section

794 for guaranties to be included in cost reimbursement type contracts should be waived on the basis that inclusion of guaranties in such contracts would not be cost effective for the reasons set forth above.

The Department will continue to follow its practice of including clauses in cost reimbursement type weapon systems contracts that require the contractor to correct or replace defective supplies. In cost reimbursement incentive type contracts, which are the most frequently used type of cost contract for weapon systems, we will continue to follow our current practice of using incentives and penalties, where appropriate, to assure that we obtain weapon systems that conform to the requirements of the contract and are of high quality and reliability.

Sincerely,



William H. Taft, IV

GUIDANCE POLICY ON ACQUISITION PROCESS

Ms. GILLEECE. As a general statement as to what that policy guidance does, essentially what we were able to do, I believe, was to write policy guidance which causes as little adverse disruption to the acquisition process and as little confusion at the working level. While we would like to achieve even more improvements in the use of warranties and we continue, through the implementation of our own regulations as well as this law, to do so, we have made a conscientious and reasoned effort to interpret the law and apply it in a way that conforms to the intent and wishes of Congress, while at the same time, as I mentioned, causing as little disruption as possible.

Reflecting for a moment, we have reviewed the guidance to make sure—and Mr. Taft does state that he is aware that the statute does not apply to prototypes; I know that was of some concern. As I mentioned, the cost reimbursements have been waived, and I assure you that we continue, as I said, to support warranties. However, we still do support the need for some flexibility in the language. Instead of having warranties specifically defined that we must use at all times, we would like the flexibilities to use warranties when appropriate.

Mr. Chairman, that concludes my brief opening statement.
[The prepared statement of Ms. Gilleece follows:]

PREPARED STATEMENT OF MARY ANN GILLEECE
DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION MANAGEMENT)

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, I APPRECIATE THE OPPORTUNITY TO DISCUSS ACQUISITION MANAGEMENT REFORMS WITH PARTICULAR EMPHASIS ON THE PROCUREMENT OF SPARE PARTS.

AS A RESULT OF DISCLOSURES BY THE DOD INSPECTOR GENERAL, INTERNAL AUDIT ORGANIZATIONS, AND OTHER DOD PERSONNEL OF EXCESSIVE PRICES PAID FOR SPARE PARTS, THE SECRETARY OF DEFENSE, BY MEMORANDUM OF JULY 25, 1983, DIRECTED THAT ACTION BE TAKEN TO IMPROVE SPARE PARTS PROCUREMENT. THIS WAS FOLLOWED A MONTH LATER, ON AUGUST 29, 1983, BY MORE ENCOMPASSING DIRECTION AS TO ACTIONS AND INITIATIVES TO BE TAKEN TO REFORM SPARE PARTS ACQUISITION.

THIS IS NOT A NEW PROBLEM. IT HAS HAUNTED THE DEPARTMENT FOR SEVERAL DECADES. PAST ADMINISTRATIONS HAVE, AT TIMES, INITIATED EFFORTS TO GET ON TOP OF THE PROBLEM BUT WHEN BUDGETS WERE TRIMMED, FAVORED SOLUTIONS WERE TO STRETCH OUT SYSTEMS AND REDUCE SUPPORT AND READINESS, USUALLY IN TERMS OF PERSONNEL AND SPARE PARTS. ACQUIRING AND MANAGING OUR INVENTORY OF NEARLY 4 MILLION ITEMS IS VERY PEOPLE INTENSIVE. LAST YEAR ALONE, WE HAD ALMOST 15 MILLION PROCUREMENT TRANSACTIONS. I KNOW OF NO ORGANIZATION IN THE FREE WORLD THAT APPROACHES THE SIZE OF OUR INVENTORY OR THE VOLUME OF OUR PROCUREMENT TRANSACTIONS.

CLEARLY, SHORTFALLS IN RESOURCES HAVE CONTRIBUTED TO THE SPARE PARTS PROBLEM. BUT, MANAGEMENT ATTENTION WAS ALSO LACKING. EXPEDIENCIES AND SHORTCUTS WERE TAKEN TO MEET AN EVER INCREASING DEMAND FOR SUPPORT OF EQUIPMENT, WITH LITTLE CHANGE IN THE NECESSARY SUPPORT RESOURCES. THE SECRETARY OF DEFENSE HAS MOVED MOST AGGRESSIVELY TO REFORM THE ORGANIZATION AND MANAGEMENT OF SPARE PARTS. WE ARE COMMITTED TO MAKING REFORMS PERMANENT AND INSTITUTIONALIZING THEM TO ASSURE THAT THE AMERICAN TAXPAYER RECEIVES FULL VALUE FOR THE TAX DOLLAR.

THE MILITARY DEPARTMENTS AND THE DEFENSE LOGISTICS AGENCY, UPON WHICH, PRINCIPALLY, THE TASK OF IMPROVING THE ACQUISITION OF SPARE PARTS LIES, ARE TAKING POSITIVE MEASURES TO CORRECT DEFICIENCIES IN PROCEDURES. EACH HAS HAD TASK TEAMS EXAMINE THEIR PROCEDURES AND IDENTIFY NEEDED CORRECTIONS. FOR EXAMPLE, THE ARMY TASK EFFORT, IDENTIFIED AS SPRINT (SPARE PARTS INITIATIVES), RECOMMENDED 67 INITIATIVES. THE NAVY TASK EFFORT, IDENTIFIED AS BOSS (BUY OUR SPARES SMART), RECOMMENDED 102 INITIATIVES. THE AIR FORCE MANAGEMENT ANALYSIS GROUP ISSUED THEIR REPORT LAST OCTOBER AND RECOMMENDED 178 INITIATIVES. EACH IS NOW IN THE PROCESS OF IMPLEMENTING THEIR INITIATIVES.

TO IMPLEMENT THESE INITIATIVES EFFECTIVELY WILL REQUIRE ADDITIONAL PERSONNEL AND UPGRADING OF OUR AUTOMATIC DATA PROCESSING CAPABILITY. ACQUISITION OF SPARE PARTS IS VERY PEOPLE INTENSIVE. CONGRESS PROVIDED FOR 700 ADDITIONAL PERSONNEL IN FISCAL YEAR 1984 AND WE HAVE BUDGETED FOR ABOUT 4,000 ADDITIONAL BILLETS FOR SPARE PARTS ACQUISITION IN FISCAL YEAR 1985. WE ARE VERY HOPEFUL THAT CONGRESS WILL SUPPORT THE REQUIREMENTS FOR ADDITIONAL PERSONNEL. THESE ADDITIONAL PERSONNEL WILL, OF COURSE, REQUIRE TRAINING AND ON-THE-JOB EXPERIENCE BEFORE THE BENEFITS ARE FULLY REALIZED.

SOME OF THE MORE SIGNIFICANT ACTIONS THAT WE ARE TAKING INCLUDE THE RECENT REVISION AND ISSUANCE OF THE DOD REPLENISHMENT PARTS BREAKOUT PROGRAM. THE PURPOSE OF THE BREAKOUT PROGRAM IS

TO PERFORM INTENSIVE REVIEWS OF PARTS WITH AN ANNUAL BUY REQUIREMENT OF \$10,000 OR MORE WITH THE OBJECTIVE OF BREAKING THEM AWAY FROM MAJOR SYSTEM AND EQUIPMENT MANUFACTURERS FOR COMPETITIVE PROCUREMENT OR, IF THAT IS NOT POSSIBLE, PROCUREMENT FROM THE ACTUAL MANUFACTURER OF THE PART.

ANOTHER CONTINUING PROBLEM AREA HAS BEEN THE ACQUISITION, STORAGE, UPDATE, AND RETRIEVAL OF REPROCUREMENT DATA PACKAGES. COMPETITIVE PROCUREMENT IS OFTEN DEPENDENT ON THE AVAILABILITY OF DETAILED ENGINEERING AND MANUFACTURING DATA. THIS DATA MUST BE ACCURATE AND COMPLETE; OTHERWISE WE RISK THE FAILURE OF CRITICAL EQUIPMENT. THIS IS A CHALLENGE TO OUR ENGINEERS AS WELL AS ACQUISITION PERSONNEL. WE ARE BEING MORE DEMANDING IN OUR ACQUISITION OF DATA, ALTHOUGH THIS IS EXPENSIVE. FOR EXAMPLE, THE AVERAGE COST FOR PREPARING A TECHNICAL DATA PACKAGE FOR A TYPICAL NONCOMMERCIAL BOLT IS APPROXIMATELY \$1,200. THIS IS BASED ON A GOVERNMENT INDUSTRY DATA EXCHANGE PROGRAM SURVEY OF SEVERAL YEARS BACK THAT FOUND THAT IT TOOK AN AVERAGE OF 28 HOURS TO PREPARE A REPROCUREMENT TECHNICAL DATA PACKAGE FOR A BOLT. THE HOURLY RATE CHARGED BY MAJOR DOD CONTRACTORS, WHICH INCLUDES DIRECT COSTS, OVERHEAD, ETC., WAS CALCULATED AT \$41.00 AN HOUR. EXTENDING THESE HOURS BY THE HOURLY RATE WITH A SMALL ADJUSTMENT FOR INFLATION APPROXIMATES \$1,200. HOWEVER, WE ARE REQUIRING THAT DATA BE IDENTIFIED, PURCHASED, AND DELIVERED ON SCHEDULE.

AN ISSUE THAT HAS GIVEN RISE TO SOME CONCERN IS PROPERTY RIGHTS IN TECHNICAL DATA. THE SECRETARY OF DEFENSE, IN HIS MEMORANDUM OF AUGUST 29, 1983, DIRECTED THE DOD COMPONENTS TO NEGOTIATE DATA PROVISIONS IN CONTRACTS WHICH, AS APPROPRIATE, REDUCE CONTRACTORS' PROPRIETARY RIGHTS IN DATA AND HE APPROVED A DEVIATION IN THE DEFENSE ACQUISITION REGULATION (DAR) FOR THIS PURPOSE. UNDER THE DAR, THE CONTRACTOR MAY LIMIT THE GOVERNMENT'S RIGHTS TO USE TECHNICAL DATA FOR REPROCUREMENT PURPOSES WHERE THAT DATA WAS DEVELOPED AT PRIVATE EXPENSE. FOR THE 2.2 MILLION ITEMS THAT HAVE BEEN SCREENED FOR BREAKOUT, LESS THAN 3 PERCENT ARE IDENTIFIED AS BEING RESTRICTED BECAUSE OF PROPRIETARY CLAIMS. WHILE THE INCIDENCE OF PROPRIETARY CLAIM APPEARS SMALL, THE DOD COMPONENTS HAVE BEEN CONSIDERING CONTRACT PROVISIONS THAT WOULD CARRY OUT THE SECRETARY'S DIRECTION. OUR OBJECTIVES IN THIS MATTER ARE TO OBTAIN RIGHTS IN PROPRIETARY DATA WHERE DOWNSTREAM BENEFITS IN COMPETITION ARE APPARENT AND TO PROVIDE CONTRACTOR'S APPROPRIATE CONSIDERATION FOR GIVING UP THEIR LEGITIMATE PROPERTY RIGHTS IN THE DATA.

WE ARE CHALLENGING CONTRACTOR CLAIMS OF PROPRIETARY RIGHTS IN DATA AND CONTRACTORS ARE BEING COOPERATIVE. A NUMBER HAVE PROVIDED DATA PACKAGES AND RETURNED SOLICITATIONS STATING THAT THE PART CAN BE PROCURED FROM OTHER SOURCES. TO HANDLE THE DATA, WE ARE OBTAINING AUTOMATED SYSTEMS THAT CAN QUICKLY RETRIEVE DATA WHEN WE NEED IT AND KEEP IT UP TO DATE. AT PRESENT OUR DRAWINGS AND TECHNICAL DATA ARE STORED IN LARGE DATA REPOSITORIES. TO OBTAIN INFORMATION, WE MUST MANUALLY RETRIEVE THE DATA PACKAGE, REPRODUCE IT, AND MAIL IT OUT. WITH COMPUTERIZED SYSTEMS WE ARE DEVELOPING, ALL THIS CAN BE DONE AUTOMATICALLY. WE WILL EVEN BE ABLE TO DISTRIBUTE ENGINEERING DATA AND DRAWINGS OVER EXISTING TELECOMMUNICATIONS NETWORKS. THE COST OF THIS UPGRADING FOR 38 MAJOR DOD DATA REPOSITORIES IS ABOUT \$200 MILLION AND WILL BE PHASED IN OVER THE NEXT FEW YEARS. HERE AGAIN WE ARE HOPEFUL THAT CONGRESS WILL SUPPORT THE FUND REQUIREMENTS AS THEY ARE BUDGETED.

PROPERTY RIGHTS IN TECHNICAL DATA IN SOME AREAS PERTAINING TO SMALL BUSINESS DO DIFFER FROM OUR GENERAL POLICY. PUBLIC LAW 97-219, THE SMALL BUSINESS INNOVATION DEVELOPMENT ACT OF 1982 WHICH ESTABLISHED THE SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM, PROVIDED ENHANCED PROPERTY RIGHTS FOR SMALL BUSINESSES WHO RECEIVED CONTRACTS UNDER THE PROGRAM. THE SMALL BUSINESS

ADMINISTRATION HAS ISSUED GUIDANCE ON THIS MATTER AND WE WILL PUBLISH IN THE NEXT DEFENSE ACQUISITION CIRCULAR OUR IMPLEMENTATION. ESSENTIALLY, SMALL BUSINESSES, UPON COMPLETING A PROJECT UNDER THE SBIR PROGRAM, WILL RETAIN PROPERTY RIGHTS IN TECHNICAL DATA DEVELOPED UNDER THE CONTRACT FOR TWO YEARS. THE GOVERNMENT CANNOT USE THE TECHNICAL DATA FOR REPROCUREMENT DURING THIS PERIOD. AFTER TWO YEARS, THE GOVERNMENT HAS A LICENSE FREE RIGHT TO USE THE DATA FOR ANY GOVERNMENT PURPOSE INCLUDING REPROCUREMENT. HOWEVER, THE SMALL BUSINESS CONTRACTOR RETAINS THE RIGHTS TO DATA FOR EXPLOITATION IN THE PRIVATE SECTOR. SUCH DIFFERING POLICIES DO CAUSE A PROBLEM WHEN WE TRY TO DEVELOP UNIFORM AND CONSISTENT DIRECTION ACROSS THE BOARD.

ANOTHER EFFORT WHICH WE BELIEVE HAS PROMISE, REQUIRES THAT CONTRACTS FOR DEVELOPMENT INCORPORATE THE DOD PARTS CONTROL PROGRAM. THIS PROGRAM, MANAGED BY THE DEFENSE LOGISTICS AGENCY, PROMOTES USE OF STANDARD PARTS IN THE DEVELOPMENT AND PRODUCTION OF A WEAPON SYSTEM. THIS ALLOWS US TO MAKE LARGER QUANTITY BUYS AND REDUCES OUR INVENTORY COSTS. IT ALSO SUPPORTS COMPETITION BECAUSE WE TYPICALLY HAVE TECHNICAL DATA AVAILABLE FOR THESE ITEMS. ONE EXAMPLE OF OUR SUCCESS IN THIS AREA IS A FAIRLY SIMPLE ELECTRONIC DEVICE, AN OPERATIONAL AMPLIFIER. THROUGH THE PARTS CONTROL PROGRAM, WE WERE SUCCESSFUL IN REPLACING 18 ITEMS IN OUR INVENTORY WITH A SINGLE STANDARD PART. ACQUISITION COSTS WENT FROM AN AVERAGE OF \$10 PER ITEM TO \$2 PER ITEM. WE ESTIMATE THAT, THROUGH THE PARTS CONTROL PROGRAM ALONE, THE DEPARTMENT OF DEFENSE SAVED WELL OVER \$100 MILLION IN 1983. SINCE LESS THAN 50 PERCENT OF OUR WEAPON SYSTEM CONTRACTS CURRENTLY EMPLOY THE PARTS CONTROL PROGRAM, THE SECRETARY OF DEFENSE, IN HIS MEMORANDUM OF AUGUST 29, 1983, MANDATED THE APPLICATION OF THIS PROGRAM IN THE DEVELOPMENT OF NEW WEAPON SYSTEMS. IT IS INCLUDED IN CONTRACTS BY REFERENCE TO A MILITARY STANDARD COVERING THE PROGRAM.

TO ENSURE REASONABLE PRICING OF PARTS AT THE TIME OF CONTRACTING, THE DOD COMPONENTS HAVE ALL TAKEN ACTION TO FLAG INCREASES IN PRICE THAT APPEAR OUT OF LINE WITH PAST PRICES. THESE ITEMS RECEIVE MORE INTENSE ANALYSIS TO ASSURE THAT THE PRICE IS REASONABLE. ALONG THESE LINES, WE WILL ISSUE OUR IMPLEMENTATION OF SECTION 1215 OF THE DOD AUTHORIZATION ACT, 1984, IN DEFENSE ACQUISITION CIRCULAR 76-48 THIS MONTH. THE REGULATION PROHIBITS THE PURCHASE OF SPARE PARTS WHEN THE PRICE HAS INCREASED BY MORE THAN 25 PERCENT WITHIN THE MOST RECENT 12 MONTH PERIOD UNLESS THE HEAD OF THE CONTRACTING ACTIVITY CERTIFIES THE PRICE IS REASONABLE OR THAT NATIONAL SECURITY INTERESTS REQUIRE THE PART BE PURCHASED. OUR REGULATION ALSO EMPHASIZES THAT INCREASES OF LESS THAN 25 PERCENT IN NO WAY RELIEVES THE CONTRACTING OFFICER OF THE RESPONSIBILITY FOR OBTAINING A FAIR AND REASONABLE PRICE.

ANOTHER AREA WHERE WE FOUND A PROBLEM IN PRICING PARTICULARLY SMALL VALUE ITEMS, WAS IN CONTRACTOR COST ACCOUNTING PRACTICES. A NUMBER OF CONTRACTORS UTILIZE COST ACCOUNTING METHODS FOR COSTING PARTS ON AN ITEM BASIS RATHER THAN A VALUE BASIS. EACH ITEM (PART), REGARDLESS OF ITS MATERIAL AND DIRECT LABOR COST, IS ALLOCATED THE SAME AMOUNT FOR MATERIAL HANDLING, OVERHEAD, GENERAL AND ADMINISTRATIVE EXPENSE, ETC. A 50 CENT PART PURCHASED BY THE PRIME CONTRACTOR FROM A VENDOR AND SOLD TO THE GOVERNMENT WAS BURDENED WITH THE SAME COST AS A \$1,000 PART PURCHASED BY THE PRIME CONTRACTOR FROM A VENDOR AND SOLD TO THE GOVERNMENT. THIS GIVES THE APPEARANCE OF LOW VALUE PARTS BEING OVERPRICED AND HIGHER VALUE PARTS BEING UNDERPRICED. THE NET TOTAL COST TO THE GOVERNMENT FOR ALL PARTS PURCHASED IS THE SAME.

THE CONTRACTORS' COST ACCOUNTING METHODS HAVE BEEN APPROVED AS BEING IN COMPLIANCE WITH REQUIRED COST ACCOUNTING STANDARDS. THE PRINCIPAL COST ACCOUNTING STANDARD GOVERNING THIS MATTER IS THAT THE CONTRACTOR'S METHOD BE CONSISTENT. OF COURSE, THE

METHOD SHOULD BE EQUITABLE. IN THESE CASES, THE METHOD IS CONSISTENT AND ASSUMEDLY EQUITABLE BECAUSE THE OVERALL COST TO THE GOVERNMENT FOR THE HUNDREDS/THOUSANDS OF PARTS PURCHASED BY THE GOVERNMENT OVER A YEAR IS REASONABLE.

HOWEVER, SUCH COST ACCOUNTING METHODS DO RESULT IN PRICING ANOMALIES. LOW VALUE PARTS APPEAR OVERPRICED WHEN COMPARED TO THEIR INTRINSIC VALUE.

OUR REFORMS ADDRESS THIS MATTER IN TWO WAYS. FIRST, OUR DOD REPLENISHMENT SPARE PARTS BREAKOUT PROGRAM IS DIRECTED AT BREAKING OUT SPARE PARTS FROM THE PRIME SYSTEM OR EQUIPMENT MANUFACTURER, PARTICULARLY PARTS WHERE THE CONTRACTOR ADDS NO VALUE, AND BUYING THEM COMPETITIVELY OR FROM THE ACTUAL MANUFACTURER. SECOND, WE HAVE DIRECTED THE MILITARY DEPARTMENTS, THE DEFENSE LOGISTICS AGENCY, AND THE DEFENSE CONTRACT AUDIT AGENCY TO UTILIZE VALUE BASED COST ALLOCATION METHODS THAT COMPORT WITH COSTING MORE IN LINE WITH THE INTRINSIC VALUE OF THE PART.

WE ARE ALSO EXPANDING THE SCOPE AND EMPHASIS ON VALUE ENGINEERING TO PROVIDE A VALUE ANALYSIS OF PARTS WHEN THE PRICE APPEARS TO BE EXCESSIVE. OUR PURPOSE IS TO SEEK MORE COST EFFECTIVE ALTERNATIVES SUCH AS IDENTIFYING OPPORTUNITIES TO INCREASE COMPETITION OR SUBSTITUTING UNIQUE PARTS WITH STANDARD PARTS WHICH CAN BE PROCURED IN GREATER VOLUME AT LOWER COST. TO OBTAIN THIS EXPANDED EMPHASIS, WE HAVE INCREASED THE NUMBER OF PERSONNEL ENGAGED IN VALUE ANALYSIS WITHIN THE DOD COMPONENTS.

ALONG WITH INCREASING OUR TRAINING FOR PERSONNEL, WE ARE REVISING PERFORMANCE EVALUATION CRITERIA TO REWARD ACTIONS THAT INCREASE COMPETITION AND EFFICIENCY AND PENALIZE LESSER PERFORMANCE. IN THE SAME VEIN, WHERE CONTRACTORS ARE OVERCHARGING US, WE ARE SEEKING REFUNDS. WHERE FRAUD IS INVOLVED, WE ARE PROSECUTING.

THE SECRETARY OF DEFENSE HAS REQUESTED THE DEPUTY SECRETARY OF DEFENSE AS CHAIRMAN OF THE DEFENSE COUNCIL ON INTEGRITY AND MANAGEMENT IMPROVEMENT TO TAKE THE LEAD IN PROVIDING OVERALL GUIDANCE AND COORDINATING THE EFFORTS OF THE DOD COMPONENTS TO REFORM THE MANAGEMENT AND ACQUISITION OF SPARE PARTS. IN SUPPORT OF THIS MANAGEMENT OVERSIGHT, THE PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING HAS BEEN HOLDING BIMONTHLY SESSIONS WITH THE DOD COMPONENTS TO TRACK THE PROGRESS OF THEIR EFFORTS AND TO PROVIDE A FORUM TO INTERCHANGE REFORM TECHNIQUES AND APPROACHES.

OUR REFORMS IN THE MANAGEMENT AND ACQUISITION OF SPARE PARTS ARE A CONTINUUM OF THE EFFORTS BY THIS ADMINISTRATION TO IMPROVE THE ACQUISITION PROCESS. THIS ADMINISTRATION, SHORTLY AFTER TAKING OFFICE, ESTABLISHED THE ACQUISITION IMPROVEMENT PROGRAM, FREQUENTLY REFERRED TO AS THE 32 CARLUCCI INITIATIVES. AS A RESULT OF A THOROUGH REVIEW OF THE ORIGINAL 32 INITIATIVES CONDUCTED LAST SPRING, THE DEPUTY SECRETARY OF DEFENSE DIRECTED THAT PRIORITY ATTENTION BE GIVEN TO SIX KEY MANAGEMENT AREAS:

- o IMPROVING PROGRAM STABILITY
- o EXPANDED MULTIYEAR PROCUREMENT
- o MORE ECONOMIC PRODUCTION RATES
- o MORE REALISTIC BUDGETING
- o IMPROVED SUPPORT AND READINESS
- o ENCOURAGING COMPETITION

SIX HIGH-LEVEL GROUPS HAVE BEEN MEETING REGULARLY DURING THE PAST YEAR TO MONITOR IMPLEMENTATION EFFORTS AND RECOMMEND ACTIONS NECESSARY TO ACHIEVE FULL IMPLEMENTATION. I SHOULD ADD THAT IMPLEMENTATION EFFORTS ALSO CONTINUE, AS NEEDED, ON OTHERS OF THE ORIGINAL 32 INITIATIVES WHICH HAVE NOT BEEN RESOLVED. THE SIX

INITIATIVES OF THE DEPUTY SECRETARY, HOWEVER, ARE THE CRITICAL PROBLEM AREAS WHICH PROMISE THE GREATEST BENEFITS. LET ME BRIEFLY REVIEW OUR PROGRESS AND PROBLEMS IN EACH ONE.

PROGRAM STABILITY IS A REFLECTION OF THE AFFORDABILITY OF OUR DEFENSE PROGRAMS. THE AFFORDABILITY PROBLEM CAN BE SOLVED MOST SIMPLY BY FUNDING THE DEFENSE BUDGET AS SUBMITTED TO CONGRESS. FOR OUR PART, SOLVING THE AFFORDABILITY PROBLEM INVOLVES CONTROLLING THE NUMBER OF CLAIMANTS FOR THE RESOURCES WE ARE ALLOCATED. FEWER CLAIMANTS PROMOTE GREATER OVERALL STABILITY AND LOWER LONG TERM PROGRAM COSTS. WE HAVE MADE IMPORTANT PROGRESS IN THIS AREA. WE BELIEVE IT SIGNIFICANT THAT THE NUMBER OF APPROVED NEW START PROGRAMS HAS BEEN REDUCED DURING THE PAST THREE YEARS FROM 15 TO 10 TO 4. AT THE SAME TIME, A LARGE NUMBER OF LOWER PRIORITY PROGRAMS HAVE BEEN CANCELLED SO THAT ONLY HIGHER PRIORITY PROGRAMS REMAIN TO COMPETE FOR RESOURCES. DURING PREPARATION OF THE FY 1983 AND FY 1984 BUDGETS, 120 PROGRAMS WERE CANCELLED, WHICH REPRESENT A TOTAL OF \$9.2 BILLION IN SAVINGS. DURING THE FY 1985 BUDGET REVIEW PROCESS, 68 PROGRAMS WERE CANCELLED, RESULTING IN ESTIMATED SAVINGS OF \$9.5 BILLION.

NEVERTHELESS, AFFORDABILITY AND PROGRAM INSTABILITY CONTINUE TO BE MAJOR PROBLEMS FOR US. ALTHOUGH IT IS TRUE THAT THE DEPARTMENT HAS CONTRIBUTED TO ITS OWN PROBLEMS BY SOMETIMES DESTABILIZING AND STRETCHING PROGRAMS DURING INTERNAL BUDGET PREPARATION AND REVIEW, THE CONGRESS HAS TAKEN ACTIONS THAT EXACERBATE THE PROBLEM. AS A RESULT, COSTS TO THE GOVERNMENT AND TO INDUSTRY WILL CONTINUE TO GROW.

NEVERTHELESS, WE WILL CONTINUE TO SEEK WAYS TO IMPROVE PROGRAM STABILITY TO THE EXTENT THAT WE CAN. MULTIYEAR PROCUREMENT HAS BEEN ONE OF THE PRINCIPAL WAYS WE HAVE SOUGHT TO INSURE GREATER STABILITY FOR PROGRAMS IN PRODUCTION THROUGH MORE ECONOMICAL LOT BUYS. SINCE THE EXPANDED USE OF MULTIYEAR WAS APPROVED BY CONGRESS IN FY 1982, WE HAVE PROPOSED 36 MULTIYEAR PROGRAMS. FROM THE 21 OF THESE PROGRAMS WHICH CONGRESS HAS APPROVED, WE ESTIMATE SAVINGS IN EXCESS OF \$3 BILLION OVER THE COST OF ANNUAL CONTRACTING.

HOWEVER, CONGRESS HAS PROVIDED UNMISTAKABLE SIGNS THAT IT INTENDS TO CONSTRAIN THE USE OF MULTIYEAR. FOR EXAMPLE, THE FY 1983 AND FY 1984 DOD APPROPRIATIONS ACTS CONTAIN A NUMBER OF PROVISIONS WHICH IN EFFECT DISCOURAGE THE USE OF MULTIYEAR BY PROGRAM PLANNERS. IN ADDITION, OF THE 16 CANDIDATES SUBMITTED WITH THE FY 1984 BUDGET REQUEST, CONGRESS DISAPPROVED 9 PROGRAMS. CONSEQUENTLY, THE TAXPAYER LOST POTENTIAL SAVINGS OF OVER \$1 BILLION. NEVERTHELESS, WE WILL TRY TO RENEW THE MOMENTUM OF THE MULTIYEAR INITIATIVE BY PROVIDING STRONG SUPPORT FOR 12 MULTIYEAR CANDIDATES (\$1.1 BILLION IN SAVINGS) CONTAINED IN THE FY 1985 BUDGET.

ECONOMIC PRODUCTION RATES (EPR) ALSO PROMOTE GREATER PROGRAM STABILITY THROUGH IMPROVED PRODUCTION PLANNING AND MAINTENANCE OF COST EFFECTIVE PRODUCTION RATES. THE DEFENSE RESOURCES BOARD HAS DIRECTED HIGHER PRODUCTION RATES FOR A NUMBER OF PROGRAMS IN RESPONSE TO THIS INITIATIVE. INCREASES IN PRODUCTION FOR 18 PROGRAMS IN THE FY 1983-1985 BUDGETS WILL SAVE AN ESTIMATED \$2.7 BILLION OVER THE LESS EFFICIENT RATES WHICH HAD BEEN PROGRAMMED. A RECENT REVIEW OF 51 OF OUR MAJOR PROGRAMS INDICATES THAT 76 PERCENT WILL ACHIEVE ECONOMIC PRODUCTION RATES DURING THE FIVE YEAR DEFENSE PLAN. SO YOU SEE, WE ARE INDEED MAKING SOME HEADWAY. LASTING PROGRESS, HOWEVER, DEPENDS ON THE BUDGETARY SUPPORT OF THE CONGRESS.

MORE REALISTIC BUDGETING IS REQUIRED BEFORE LONG TERM AFFORDABILITY AND PROGRAM STABILITY CAN BE ACHIEVED. WE HAVE TAKEN SOME VERY IMPORTANT STEPS TO INJECT SOME REALISM AND OBJECTIVITY INTO THE COST ESTIMATING AND BUDGETING PROCEDURES.

FOR EXAMPLE, WE HAVE EXPANDED OUR USE OF INDEPENDENT COST ESTIMATES AND REQUIRE JUSTIFICATION WHENEVER MORE OPTIMISTIC COST ESTIMATES ARE SUBMITTED AS A PART OF THE SERVICE BUDGET PROPOSALS. OUR EFFORTS IN THIS REGARD PREDATED THE REQUIREMENT LEVIED UPON US BY THE CONGRESS IN THE DOD APPROPRIATIONS ACT, 1984, FOR WIDER USE OF INDEPENDENT COST ESTIMATES.

IN ADDITION, WE ARE USING MORE ACCURATE INFLATION RATES IN CONSTRUCTING THE DEFENSE BUDGET BASED UPON A MARKET BASKET CONCEPT USED BY THE COMMERCE DEPARTMENT. THE RATE WHICH IS USED REFLECTS THE REAL EXPERIENCE OF THE DIFFERENT SECTORS OF OUR ECONOMY, AND ALLOWS FOR HISTORICAL DIFFERENCES WHICH HAVE BEEN EXPERIENCED BY THE DEFENSE INDUSTRY.

WE HAVE ALSO MADE SOME IMPORTANT PROGRESS IN THE AREA OF IMPROVED SUPPORT AND READINESS. PARTICULAR EMPHASIS HAS BEEN PLACED ON DESIGNING IN SUPPORT AND READINESS CONSIDERATIONS AT THE FRONT END. READINESS GOALS HAVE BEEN ESTABLISHED FOR PROGRAMS IN THE DEFENSE SYSTEMS ACQUISITION REVIEW COUNCIL PROCESS, AND WILL BE MONITORED THROUGHOUT THE ACQUISITION PROCESS. WE HAVE ALSO INITIATED A REVIEW OF SUPPORT REQUIREMENTS AND FUNDING IN THE CONTEXT OF THE PROGRAM/BUDGET REVIEW BY WHICH WE CAN ASCERTAIN WHETHER OR NOT SUPPORT REQUIREMENTS ARE BEING MET. ALL 23 OF THE SYSTEMS WE TRACKED IN THIS YEAR'S PROGRAM/EUDGET REVIEW WERE FULLY FUNDED TO MEET PEACETIME SUPPORT REQUIREMENTS.

THE LAST OF THESE SIX MANAGEMENT AREAS IS ENCOURAGING COMPETITION. COMPETITION HAS BEEN THE PREFERRED MEANS FOR ACQUIRING SUPPLIES AND SERVICES IN THE GOVERNMENT FOR GENERATIONS. FOR MANY YEARS, OBSERVERS HAVE WRONGLY EQUATED COMPETITION WITH THE METHOD OF PROCUREMENT; THAT IS, FORMAL ADVERTISING. THE COMMISSION ON GOVERNMENT PROCUREMENT HIGHLIGHTED THIS PROBLEM MORE THAN A DECADE AGO. THERE IS NO SUCH THING AS FORMAL ADVERTISING IN THE PRIVATE SECTOR. WE REQUIRE OUR PURCHASING ACTIVITIES TO SOLICIT COMPETITIVE OFFERS WHENEVER COMPETITION IS PRACTICABLE, WHETHER BY THE NEGOTIATION METHOD OR BY FORMAL ADVERTISING. HOWEVER, FORMAL ADVERTISING IS A METHOD UNIQUE TO GOVERNMENT AND UNSUITABLE FOR MOST OF OUR PROCUREMENT EFFORTS.

OBTAINING EFFECTIVE COMPETITION IS A LONG-STANDING OBJECTIVE. ALMOST ALL OF OUR MAJOR PROGRAMS, FOR INSTANCE, HAD COMPETITION AMONG PRIME AND SUBCONTRACTORS DURING THE DEVELOPMENT PHASE. THOSE WHICH WERE NOT COMPETED WERE SOLE SOURCE AS A FUNCTION OF NECESSITY, NOT CHOICE. FOR EXAMPLE, ONLY ONE SHIPYARD MAKES NUCLEAR AIRCRAFT CARRIERS. A FACT WHICH IS HARD TO AVOID.

NEVERTHELESS, A NUMBER OF ACTIONS ARE UNDERWAY TO IMPROVE OUR PERFORMANCE IN COMPETITION. THE SERVICES AND THE DEFENSE LOGISTICS AGENCY HAVE DESIGNATED ADVOCATES FOR COMPETITION WITHIN THEIR RESPECTIVE ORGANIZATIONS. COMPETITION GOALS HAVE BEEN ESTABLISHED BY EACH OF THE SERVICES AND DLA. WE ARE WORKING TO MAKE IT EASIER TO DETERMINE THE COSTS AND BENEFITS OF COMPETITION IN THE PRODUCTION PHASE AND CLARIFY POTENTIAL APPLICATION OF LEADER/FOLLOWER AND OTHER MEANS OF SECOND SOURCING FOR PROGRAMS BEING PLANNED OR ALREADY IN PRODUCTION. THE POTENTIAL FOR SAVINGS IN THIS AREA IS HIGH, AND THE BENEFIT TO THE INDUSTRIAL BASE IS UNEQUIVOCAL. AS AN INDICATION OF OUR COMMITMENT TO IMPROVE COMPETITION, THE DEPARTMENT HAS REQUESTED A LEGISLATIVE CHANGE TO ESTABLISH A NEGOTIATION EXCEPTION FOR DEVELOPING A SECOND SOURCE. THE ACTION IS NOW IN THE HANDS OF CONGRESS.

SOME OTHER ACTIONS WE ARE TAKING TO ENHANCE COMPETITION ARE CENTERED IN THE INTERSERVICE HIGH LEVEL WORKING GROUP ON COMPETITION. THIS GROUP HAS RECOMMENDED TECHNIQUES FOR IDENTIFYING SECOND SOURCE OPPORTUNITIES, IMPROVING DATA

ACQUISITION POLICIES, AND INCREASING THE EXTENT OF COMPETITION AT THE SUBCONTRACTOR LEVEL. THE GROUP HAS ALSO DEVELOPED A NEW DIRECTIVE ON COMPETITION WHICH IS BEING COORDINATED WITH THE DOD COMPONENTS. THIS DIRECTIVE WILL FIRMLY COMMIT ALL ELEMENTS OF THE DEPARTMENT TO PURSUING COMPETITION. IT WILL ACCENT EARLY PLANNING AND MARKET RESEARCH TO ENHANCE COMPETITIVE OPPORTUNITIES.

THE SERVICES HAVE ALSO PURSUED INDEPENDENT ACTIONS TO IMPROVE COMPETITION. FOR EXAMPLE, THE ARMY HAS STRESSED THE ROLE OF THE PROGRAM MANAGER IN PLANNING EARLY FOR COMPETITION IN MAJOR SYSTEMS, AND THE NAVY HAS SPONSORED A THREE-DAY TRAINING PROGRAM ON COMPETITION FOR OVER 300 NAVY PERSONNEL WITH CONTRACTING, TECHNICAL, AND LOGISTICS DISCIPLINES INVOLVED. TOPICS INCLUDED THE LEGAL BASIS FOR COMPETITION, TECHNIQUES FOR ENHANCING COMPETITION, INDUSTRY PERCEPTIONS, AND AUDIT RESULTS. THE AIR FORCE IS EMPHASIZING PLANNING AT THE MAJOR COMMAND LEVEL FOR COMPETITION. THESE PLANS WILL LOOK AT MAJOR NONCOMPETITIVE PROBLEM AREAS AND ADDRESS PLANNED REMEDIAL ACTIONS TO ASSURE FUTURE COMPETITION. SIGNIFICANT ANNUAL ACHIEVEMENTS AND FORECASTS FOR FUTURE YEARS WILL BE ADDRESSED IN THE PLAN.

THROUGH ACTIONS SUCH AS THESE, THE ENTIRE PROCUREMENT PROCESS IS FOCUSING ON INCREASING COMPETITION WHERE IT MAKES SENSE. PERHAPS THE MOST VIVID EXAMPLE OF WHAT CAN BE DONE WITH EARNEST CONGRESSIONAL SUPPORT IS THE RECENT ALTERNATE FIGHTER ENGINE COMPETITION CONDUCTED BY THE AIR FORCE. IT WAS NOT ONLY AN EFFECTIVE PROGRAM COMPETITION, BUT ONE THAT ASSURED FUTURE COMPETITION FOR OUR DOWN-STREAM SPARE PARTS REQUIREMENTS.

SO, MY MESSAGE TO YOU TODAY IS THAT THIS ADMINISTRATION AND THE DEPARTMENT OF DEFENSE ARE COMMITTED TO REFORMING THE WAY WE DO BUSINESS. WE ARE DEDICATED TO HAVING AN EFFICIENT AND ECONOMICAL ACQUISITION PROCESS. BUT, WE CAN'T GO IT ALONE. AS MEMBERS OF CONGRESS, WE NEED YOUR COOPERATION AND SUPPORT. PROGRAM STRETCH-OUTS, RESTRICTIONS ON DUAL SOURCING, RELUCTANCE TO FUND ECONOMIC PRODUCTION RATES, REJECTION OF MULTIYEAR CANDIDATES, AND FAILURE TO FUND SUSTAINING COMPETITIONS ARE ALL INIMICAL TO THE ADMINISTRATION'S COMMITMENT TO THE NATION'S TAXPAYERS. WE EARNESTLY SOLICIT YOUR COLLECTIVE AND INDIVIDUAL SUPPORT IN RESISTING NEAR-TERM TAMPERING WITH LONGER-TERM PROGRAMS FOR ECONOMY AND EFFICIENCY IN A STRONGER DEFENSE.

THIS CONCLUDES MY FORMAL STATEMENT. I HAVE WITH ME REPRESENTATIVES OF THE MILITARY DEPARTMENTS AND THE DEFENSE LOGISTICS AGENCY. WE WOULD BE PLEASED TO ANSWER YOUR QUESTIONS.

INTERCHANGEABILITY OF WARRANTY AND GUARANTEE

Senator RUDMAN. Before we proceed with the other members of the panel, I want to ask you just one question that I am sure would be of interest to all members of the committee.

I am looking at the letter dated 14 March from the Deputy Secretary of Defense to Chairman Hatfield, which has been issued in connection with the policy statement you referred to in your statement.

I note that Mr. Taft throughout this letter of 14 March continually uses the word "guarantees" as opposed to "warrantees." Are those words interchangeable with DOD?

Ms. GILLECE. At this time, Mr. Chairman, essentially what we have done is consulted with the Office of General Counsel to determine whether "guaranty" or "warranty" should be differentiated. They have informed us that at this point we use them interchangeably.

So, in fact, "guaranty" is the language in the statute, but we have not differentiated. I have used "warranty" meaning "guaranty."

Senator RUDMAN. So, essentially any differences are in the terms of art, how those are used in contract law; but you are using that in the sense that the committee amendment reflected.

Ms. GILLECE. That's correct.

Senator RUDMAN. That's fine. I assumed that was what you were doing.

Ms. GILLECE. Yes, sir.

I would ask the other members of the panel now to address you.

DEPARTMENT OF THE ARMY

PROCUREMENT AND PRODUCTION, DEVELOPMENT AND ACQUISITION
COMMAND

STATEMENT OF MAJ. GEN. DAVID W. STALLINGS, DIRECTOR, PROCURE-
MENT AND PRODUCTION, DEVELOPMENT AND ACQUISITION COM-
MAND, DEPARTMENT OF THE ARMY

COMPETITION

General STALLINGS. Mr. Chairman, I am Gen. Dave Stallings from the Army, specifically from the Development and Acquisition Command. I was also the project manager for the DARCOM Spare Parts Task Force which examined the procurement practices in the acquisition of spare parts.

First I would like to make a couple of statements about competi-
tion. It was clear, as we went through our deliberations, that com-
petition is the best way to obtain fair and reasonable prices on the
spares that we buy, and all the items that go with those spares.

Our record shows that in 1981, we were competing overall for ev-
erything that we bought at 28.1 percent. In fiscal year 1983, we
were at 31.5 percent; and we have a goal for 1984 of 32.6 percent.

In the last couple of years, in the area of spares, we have compet-
ed approximately 45 percent of our spares dollars.

PERSONNEL AND TRAINING

In the area of personnel and training, once we got the Secre-
tary's letter in August and we found that we were not going to be
able—

Senator STEVENS [presiding]. General, pardon.

I would say to the media people that you will be permitted to use
that microphone so long as you do not use it to pick up conversa-
tions between members and their staff.

That happened to us the other day, and if it happens again, we
will take them all out of here.

Please continue, General.

General STALLINGS. Yes, sir.

When we got the Secretary's letter concerning the thrust that we
should be taking in the area of spares, we redirected 297 personnel
from the jobs they were doing into the area of spares from the
period of August 29 to December 31, 1983.

Obviously, it is rather manpower intensive to do everything that
is required and we have requested through the appropriate chan-
nels 1,063 personnel to accomplish all the things that we need to do
to better obtain fair and reasonable prices on our spares.

We think that we now have that relief, and we are in the process
of hiring those people and bringing them onboard in the area of

processing our technical data, helping us with our breakout and in the procurement of our spares.

TRAINING

Training is a very important part of what we are doing. We had our school that does our procurement training set up a 40-hour course, and we are taking that course to each one of our buying commands. The first course will be given at the start of this next quarter. We think this will be very helpful to the young buyers and other personnel who are involved in spare parts acquisition.

We sent out over 152 letters signed by the commanders of our buying commands to our major civilian contractors telling them how much we needed their help in doing a better job, and it is beginning to pay dividends.

REFUNDS

In the area of refunds, our records show that since we started this effort we have reported refunds of approximately \$212,000 due to excessive pricing of spare parts.

We have set up a process to identify those people who are coming up with new and bright ideas in the area of competition and breakout, where they identify specific ideas, and we are rewarding those people. We have 31 people who were given monetary awards in the last quarter.

BREAKOUT

In the area of breakout, in the implementation of Defense Acquisition Regulation [DAR] supplement No. 6, we have set up a project manager at each one of our buying commands whose title specifically is project manager for breakout. We have been successful thus far, just looking at the last quarter's statistics, in moving over 4,000 items that were coded as sole source, or an acquisition method code of 5, into either codes 2 or 4, which means that it is open to competition or can be purchased directly from the manufacturers.

I might also mention that he works for a high ranking official in each one of our buying commands known as the competitive advocate. We have designated a brigadier general at each one of our buying commands to fill that job, and he is the official who insures that in the long-range strategy in our procurements, competition, and breakout are considered. He also has an overwatch view of what we are doing in this area on a daily basis.

ANNUAL PURCHASES

Finally, I would say that each one of the contractors who responded to our letter on spare parts acquisition suggested the Army buy on an annual basis. We are now moving to annual buys for our procurement of spare parts. We are also looking at our EOQ's, and we have already adjusted the algorithm that goes into the computations, increasing that from 3 to 6 months and we are looking into raising it to a year.

We think this is going to be very helpful in doing a better job of buying spare parts from our contractors.

That is the end of my statement, sir.

Senator RUDMAN [presiding]. Thank you, General Stallings.

Admiral Giordano, do you have a statement?

DEPARTMENT OF THE NAVY

NAVAL SUPPLY SYSTEMS COMMAND

STATEMENT OF REAR ADM. ANDREW A. GIORDANO, COMMANDER, NAVAL
SUPPLY SYSTEMS COMMAND, DEPARTMENT OF THE NAVY

IMPROVING PERFORMANCE IN SPARE PARTS

Admiral GIORDANO. Mr. Chairman, I am Admiral Giordano, and I command the Navy inventory control points that buy the spare parts. I will quickly go through the four items in our initiatives for improving our performance in space parts.

BREAKOUT

First is in the area of breakout, which is probably the most lucrative area in terms of significantly bringing reductions to prices. Seventy-two percent of our total effort and our resources that we have allocated to this initiative are going to the breakout process.

I am very pleased to report that in the first 4 months of fiscal year 1984, we have already broken out \$65 million worth of spares, either through competition or to the original equipment manufacturer. As we bring our personnel on board and our contractors on board and we get more experience, I think we will be more successful in this.

Additionally, we have challenged our contractors and our vendors to identify those items which they buy from someone else and sell to us and perform no magic on those items. To date, they have given us 58,000 items, and we have crossed 20 percent of them to stock numbers. These are items that are managed either by Navy or by DLA. The annual buy value of those items managed by the Navy is about \$64 million.

We also have requested a number of our contractors to voluntarily remove their proprietary data restrictions from their drawings. This is where we felt it was reasonable.

Our initial letters, our initial screen, resulted in removal of restrictions from items with an annual buy value of about \$4.2 million. We also have a number of court challenges in process, where we feel that we have paid for the development of data and yet it is stamped "proprietary." The first case, which is about to come to fruition, should result in a potential cost avoidance in excess of \$6 million over a 5-year period, if we are successful.

COMPETITION

The area of competition, is an area in which we are extremely interested because this is where we bring in the marketplace to reduce the price. The Navy has a flag officer dedicated solely to increasing competition. He is Competition Advocate General of the

Navy, Commodore Stuart Platt, and he is seated immediately behind me. We have had some successes with various vendors in bringing prices down and getting data from them. We also have competition advocates at 47 major activities with significant procurement authority.

Also we have assigned some tough competition goals. Last year, the Navy overall achieved 30.5 percent and to date our competition in fiscal year 1984 is 41.3 percent.

Looking at competition in buying aviation spare parts, for years we used to plateau at around 8 or 9 percent. So far in fiscal year 1984 the aviation supply office is up to 15.2 percent. At the ships' parts control center, which used to average around 21 percent, so far this year it is at 45.9 percent.

REFUNDS

In refunds, we have been very aggressive when we have identified items which we feel have been overpriced in going back to the companies and getting refunds. To date, we have received nearly \$400,000 in refunds from nine different major vendors.

We have a team in Norfolk called Price Fighter which pulls items out of the bin and does an intrinsic value analysis of the item to determine what the "should" cost is, and they have been very instrumental in identifying refund candidates.

No program really can be successful without your people behind it, working with you. We are very heavily involved in training and motivating and rewarding of those people who are involved in this effort. To date, we have given over 20 major monetary awards totalling over \$11,000.

PROCUREMENT TRAINING

In addition to this, we are heavily involved in procurement training for all our procurement specialists, so that we can get the best possible deals in such areas as cost overhead allocations.

Mr. Chairman, the examples I have cited are indicative of the commitment that we have made to improving the acquisition of spares, and we feel we have charted a good course. We seek your support for our program.

Thank you.

Senator RUDMAN. Thank you, Admiral.

DEPARTMENT OF THE AIR FORCE

RESEARCH, DEVELOPMENT AND ACQUISITION

STATEMENT OF IRA L. KEMP, ASSOCIATE DIRECTOR, DIRECTORATE,
CONTRACTING AND MANUFACTURING POLICY, DEPUTY CHIEF OF
STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, DEPARTMENT
OF THE AIR FORCE

COMPETITION PROGRAM

Senator RUDMAN. Mr. Kemp.

Mr. KEMP. Mr. Chairman, I represent the Air Force.

The Air Force also has been very aggressively pursuing improving the acquisition of spare parts and support equipment and in improving our people programs and in improving our training programs.

Our competition program already is beginning to see some improvement as a result of our competition advocate program. We have manned and staffed our competition advocate offices that have been established in our major acquisition organizations as well as all of our base procurement organizations. We are beginning to see a significant improvement in the screening of items so that items can be identified for competition.

In the first quarter of this year alone, some 1,300 new items that have fallen into the screening process have been broken out from sole source to competition.

Our statistics with regard to improving competition have increased over 2 percent in the first quarter of this year, versus our accomplishments in fiscal year 1983, which was 32.4 percent.

PEOPLE PROGRAMS

Our people have been encouraged to do a much better job in the pricing and negotiation of our contracts. This very week, we have a major conference going on at Oklahoma City, which is to disseminate the official policy and concern of the Department of Defense and the Air Force to our people and to the contracting community, that they are going to have to do a better job of pricing and making sure that unit price integrity is maintained in the items that we acquire.

As has been pointed out, because of the intensive need for additional people to do these jobs—it is very people intensive, as has been said—we have brought on over 600 people already. We are in the process of training these people. We have a program going at Wright-Patterson Air Force Base to train over 300 buyers and other technical personnel in the acquisition process, and specifically with very detailed procurement training, so that they will know

exactly what is required of them in the performance of their responsibilities when they move into buying organizations.

We are trying to reach our people and get them to understand completely the responsibilities we expect them to carry out.

AWARDS PROGRAM

We have very aggressively reviewed the many items we already have in the field. We have an awards program and we have required our people to challenge items that they have in the field which they can identify that they believe to be overpriced. Over 6,300 challenges of prices of known items in the field have been made, and over 350 of these have already been identified as validly overpriced items.

It is interesting to note, Mr. Chairman, that about 5 to 10 percent of what people believe is overpriced is actually overpriced when we take a good, hard look at the items and understand them. There is a problem and we are trying to identify those.

We have strongly encouraged our people to come to us and tell us if they think we have done a bad job. That is an internal control.

As a result of this program, we already have awarded approximately \$40,000 to some 55 personnel in awards, as a result of their endeavors and interest in the program, as well as many letters of appreciation and commendation. These have been issued to recognize the efforts of people in this program.

OVERCHARGES BY VENDORS

Senator STEVENS [presiding]. Tell me, now, you reward the people who find the problem, but what do you do about the people who overcharge us?

Mr. KEMP. I was going to get to that, Senator Stevens.

Secretary Orr has written to over 20 of our major contractors saying here are some items of yours that we have identified. We want you to take a look at these items and we want you to tell us what you are going to do. We want you to make appropriate restitution on these items that you find are overpriced. Here is why we believe they are overpriced. Now you explain to us what are your findings.

Those responses are coming in, sir.

Senator STEVENS. This committee is considering an amendment to ban anyone who participates in overpricing from subsequent competitive bidding and to make them ineligible for sole-source procurement.

I think we have to get tough on this. I do appreciate what you are doing. I think that rewards for those who are discovering this overpricing is a good program.

But the public that we have been exposed to all over the country is just up in arms about the continuation of this. And even 5 to 10 percent of the items being overcharged is still at a scandalous level, so far as we are concerned.

We would like to have you consult with our staff about the mechanisms for barring those who intentionally overcharge the Government.

Mr. KEMP. I would be very pleased to work with your staff on this.

Senator STEVENS. Ms. Gilleece, I think you should be involved in that, too. We are really going to get serious this year and find a way to crack down.

Mr. KEMP. Again, Mr. Chairman, may I point out that the item, the 5 to 10 percent that I am talking about, are of those that are reported as originally believed to be overpriced. It does not represent 5 to 10 percent of the total population of parts that we buy. Those are those identified, where people actually believe something is wrong. Those are intensively investigated to see if, in fact, there is some valid basis for it.

PERCENTAGE OF OVERPRICED ITEMS

Senator D'AMATO. Mr. Chairman, if I might interject. Are you suggesting that only 5 to 10 percent is the portion of your spare parts buys you believe to be overpriced? In other words, after you look into your procurement records you find that in some cases there is no overcharge, so that the figure is less than 5 to 10 percent?

Mr. KEMP. Yes, sir; these are the items that have been identified.

Senator D'AMATO. Well, let me tell you something, and then I will pass for now.

Believe me, if the figure were 5 to 10 percent it would be a wonderful saving for the American public. But the figure is a lot worse.

You don't have a data base that is worth anything. You don't have any way to validate this 5 to 10 percent figure. You are going to spend \$200 million in the wrong direction. We will talk about that later.

Now remember what you said, you believe 5 to 10 percent of your buys are overpriced. If it were only 5 to 10 percent, we'd be saving hundreds of millions of dollars. The figure is a lot worse.

We are doing a terrible job, and I think we need a whole new management direction in this.

But I promise to withhold further until I get my opportunity, my turn.

WARRANTEES

Senator STEVENS. I will have to leave shortly to go to another meeting, but I do want specifically to deal with this because I do believe that the approach Senator Andrews has given us on warranties, which you will get into soon, set a standard.

Now, we insisted that that standard be capable of being waived by the Department in the interests of national security. It may be that the approach that I am suggesting has to be capable of being waived by the Secretary in the interests of national security where there is no other sole source.

But certainly we ought to find some way to eliminate the people, particularly in the spare-parts area, who literally are just gouging the American taxpayer.

I am sincere in this. I think we have tried our best to find some way around this, and now we are going to have to find some way to really use a club.

I hope you will all think about this and give us your best judgment.

It is my intention this year to suggest that to the committee.

Thank you all, very much.

Senator RUDMAN [presiding]. I believe there is one other witness.

Admiral Grinstead, do you have some testimony for us?

Admiral GRINSTEAD. Sir, I would like to insert my statement for the record and would summarize it for you.

Senator RUDMAN. It will be placed in the record.

Go right, ahead, Admiral.

DEFENSE LOGISTICS AGENCY

STATEMENT OF VICE ADM. EUGENE A. GRINSTEAD, SC, USN, DIRECTOR,
DEFENSE LOGISTICS AGENCY

AWARDING OF COMPETITIVE CONTRACTS

Admiral GRINSTEAD. Mr. Chairman, I am Vice Admiral Grinstead from the Defense Logistics Agency.

First I would like to review with you our track record.

In 1983, we awarded contracts totaling \$16 billion; 80 percent of those dollars were awarded competitively.

If you take out the fuel, oil, food, and clothing, things that you have not been chasing, we are approaching 65 percent on the hardware items in competition awarded during 1983.

Senator RUDMAN. How does that reflect for past years, Admiral?

Admiral GRINSTEAD. It's pretty normal. For a couple of years before that, it was at about the same rate.

Now, for 1984, we set goals for our hardware centers of a 5-percent increase on a dollar-value basis. So far this year we have been making it.

SECDEF INITIATIVES

Let me talk to you about the significant actions we have taken relative to carrying out the SECDEF's initiatives.

First, we put in the competition advocate, both the organizational structure that supports it at headquarters and at the major buying activities.

We have authorized 336 new personnel to pursue all disciplines in the buying centers. On top of that, we have authorized 800 personnel out in the contract administration world to respond to the services and do price analysis.

I think one of the most important things we have done is gone straight back to the original equipment manufacturers for technical data and manufacturing source information. Normally, when we chase drawings, we go through the services. In this particular instance, and under the interest and pressure we have had, we have gone straight to the OEM's. I would say that we are getting a tremendous response, probably, I would say, as a result of the SECDEF interest, the congressional interest, and the media interest.

We also are out to obtain and have just recently received approval to proceed with the purchase of about \$5 million worth of new equipment to make our tech data more accessible and provide a better environment from which to get to it. In November 1984, we expect the first installation, which will give us video access to the tech data by the buyers and the technicians.

Let me talk to you now about some examples of the results so far this year.

VALUE ENGINEERING

In value engineering, we had a goal last year of \$31 million in savings. We surpassed that. In 1984, we set a goal of \$63 million and we think we will meet that.

BREAKOUT

In the breakout, so far this year, for the first quarter, we have broken out 980 sub-source items, and realized savings of \$2.5 million immediately.

STANDARDIZATION

In the standardization area, which is sort of parts control and probably the best way of avoiding the problem in the future, in 1983, we supported 557 contracts that the services awarded, and we reviewed 45,000 new items.

The services, after the review, agreed to substitute standard items on 23 percent of those. That amounted to a cost avoidance of \$129 million.

For the first quarter of this year, through all our competition initiatives, we have realized \$15.3 million in saving.

We are asking you for \$22 million to carry out these initiatives in 1985. If you take that as a going way of doing business, you are going to have a 2 to 1 payoff.

TECHNICAL DATA ISSUE

Now, the primary challenge, as I see it, within the community I am in, is the technical data issue. I either have inadequate or have totally missing drawings in 70 percent of the items that I manage. I think that pursuing that issue is going to have the biggest payoff.

INCENTIVE AWARDS

In incentive awards, in the first quarter of fiscal year 1984, we made awards to 44 employees from \$100 and \$400. It is a motivating factor, and we are taking advantage of it.

CRIMINAL ACTIVITY

In the area of criminal activity, in 1983, we suspended 53 contractors and debarred 97.

VOLUNTARY REFUNDS

In the area of voluntary refunds, since December 1983 we had 18 cases and got refunds of \$160,000.

TRAINING

In the area of training, we have plans, and our biggest payoff there is in VE. I think most significantly we are going to train

1,800 people to recognize the opportunities that are before them to go to competitive procurement.

I would like to say to you that I believe if you support us in the budget process, we are going to carry out what you want and get the savings you are after and would like to see in the process.

Thank you very much.

[The prepared statement of Admiral Grinstead follows:]

PREPARED STATEMENT OF VICE ADM. EUGENE A. GRINSTEAD, SC, USN
DIRECTOR, DEFENSE LOGISTICS AGENCY

Mr. Chairman, I am Vice Admiral Grinstead, Director of the Defense Logistics Agency. I am pleased to appear before the Subcommittee on Defense to discuss the actions the Defense Logistics Agency has taken to improve competition and pricing in purchases of spare parts.

First, I think it would be useful and appropriate to review the actions initiated to implement the SECDEF guidance and the specific actions taken by the Defense Logistics Agency (DLA), to increase competitive procurement. As you are aware, DLA realized over 80% competition in its \$16 billion procurement program in FY 1983. In the spare parts procurement part of the program we realized almost a 65% competition rate. DLA's competition rate is showing impressive improvements in FY 84, as a result of SECDEF's initiatives, Congressional interest and the response from industry. In the hardware commodities, DLA has established a goal of a 5% increase in FY 84 competitive procurement rate for each of its hardware procurement centers. We have made progress toward that goal. The significant and specific actions we have taken include:

- ° The establishment of a competition advocate office and a supporting organization structure in each buying center and at headquarters.

- ° Authorization of 336 additional personnel in the buying centers to increase all aspects of our competitive procurement efforts including value engineering, -breakout, price analysis, standardization, the parts control program and specialized competition advocate personnel. In addition, 810 additional personnel will be authorized in our Defense Contract Administration and Quality Assurance programs in support of the Military Service's competition and pricing programs.

- ° Direct liaison and visits to Original Equipment Manufacturers (OEMs)

to obtain missing or inadequate technical data, obtain sources of supply and to challenge proprietary data legends. Response by industry has been most encouraging.

° The initiation of procurement action to obtain automation equipment to make our technical data repositories more productive and responsive.

Although, the initiatives are not fully in place, I think you will be pleased with our progress. I believe that the initiatives taken by the DoD, the interest shown by the Congress and the Media have all contributed to some unusual and favorable results. Industry is obviously eager to fill much of the missing and inadequate technical data gaps. The emphasis being placed on price analysis and all aspects of competitive procurement is paying dividends.

I would like to highlight some of our experiences:

General Price Reductions: A recent analysis by the Defense Industrial Supply Center compared 10,221 items procured in FY 83 with the identical items procured in FY 84. The analysis indicated that there were 6,299 price decreases, prices for 3,138 items increased and prices for 784 items did not change. The net price reduction was over \$5 million.

Here are a few examples of our efforts that have contributed significant savings to the Government.

Value Engineering: As a result of buyers requests for VE assistance, the VE staff developed a drawing and obtained Service approval for an item which under a competitive environment reduced the sole source price from \$33.58 each to \$.72 each, with a savings of \$292,454. Delivery time was reduced from 16 to 6 months. The unit price of a transformer was reduced from \$2,378 to \$1,095, with an immediate savings of \$224,524. On a magnetic disk set, the unit price was reduced from \$478.10 to \$230.02, with a savings of \$181,818. Value Engineering is historically our most successful endeavor with FY 83 savings of \$51.6 million and the FY 84 goal is \$63.3 million. We

plan to provide training to 1800 people to enhance their ability to recognize opportunities to enhance competition through VE.

Breakout: So far in FY 84, for sole source breaks alone, DLA has realized success in breaking out 980 items for a savings of over \$2.5 million. For FY 84, we have provided two breakout goals for each center. One goal is the minimum number of items to receive intensive review and the second is a percent of items reviewed which result in successful breakout.

Standardization: The most significant vehicle for obtaining increased standardization is through the Parts Control Program. The major thrust of this program is to promote the use of preferred or standard parts during the design of equipment and weapon systems. The Military Services, through contract clauses, require contractors to submit lists of proposed parts and, through review of the multi-service advisory group, the proliferation of non-standard parts is reduced. The results are impressive. In FY 83, DLA reviewed 45,000 proposed non-standard parts under 557 contracts, for which 23.6% (10,000) were converted to standard type parts for a cost avoidance of \$129 million. The SECDEF initiatives mandate the expansion of this program.

Our competition, value engineering and breakout programs show a price reduction savings of \$15.3 million for the first quarter of FY 84. These are immediate savings only and do not reflect what our future savings might be during the course of the year for those same items. As our savings tracking and reporting systems get into place, the documented savings will increase significantly. We are requesting a \$22.7 million operations and maintenance budget increase associated with requirements in FY 85. For our instant savings trend, this would equate to a two to one payoff on investment. This ratio should increase substantially in the out years. As our efforts are intensified and our expertise improves.

One of our primary challenges is to upgrade our technical file data base. Missing and inadequate technical data is currently an impediment to

increasing competition. We are encouraged by industry's cooperation and response to our liaison and visits to the Original Equipment Manufacturers. This attitude can save the government enormous efforts and will escalate progress in competitive procurement.

Other related items of interest to this committee are:

- ° The DLA incentives program which includes monetary as well as non-monetary recognition of employee's efforts in competition and pricing. Under this program forty-four (44) individuals have received awards in amounts ranging from \$100.00 to \$400.00 each.

- ° We are taking action against those who are guilty of misconduct or criminal activity, both Government personnel and contractors. Several Government employees have been dismissed from Federal Service. There were 53 contractor suspensions and 97 debarments in 1983.

- ° We are vigorously pursuing collection of voluntary refunds from contractors. Recently we processed 18 overpricing cases and recouped over \$160,000 in overcharges. In one case, we were refunded \$24,000 of a \$26,000 dollar order. We have realized significant increases in price challenges and we fully intend to be responsive to the challenger.

To continue this progress and success rate, care must be taken to support the manpower and ADP initiatives shown in the FY 85 Budget.

In closing, you should be aware that, while much of the activity surrounding Government spare parts acquisition is resulting in positive and decisive action, it is not without impact. We are specifically concerned with availability of material on the shelf and the impact of shortages on combat readiness. As we demand more from the administrative process, we increase the time required to buy an item and get it on the shelf. Many of the actions underway and in the offering will, at a minimum, have, and will have, at least a one-time impact by reducing stock on the shelf. Examples include:

° P.L. 98-72 mandates increased times for synopsising requirements and has added a minimum of 15 days to our procurement lead time.

° H.R. 2133 proposes several requirements which would add to lead time. For example, extending Certificate of Competency requirements to simplified small purchases which would require SBA review prior to issue; reducing quantities to accomodate small businesses who cannot handle otherwise economical quantity purchases; and requiring head of contracting activity review and approval of any decision not be set procurements aside for exclusive small business participation.

These things are mentioned to show that, while we are making every effort to comply with requirements, the clock is running and our stock and safety levels are being drawn down. We will overcome this problem given enough lead time. However, in the mean time, we are seeing adverse impact and expect more.

WARRANTY GUIDELINES

Senator RUDMAN. Thank you very much, Ms. Gilleece and gentlemen.

I will start off with a 10-minute rule and I think I will go last. I will now yield to my good friend, Senator Andrews. I, of course, have just no idea of what he will ask you about. [General laughter.]

Senator ANDREWS. Thank you, Mr. Chairman.

Madam Secretary, today section 794 of the fiscal 1984 defense appropriations bill goes into effect; 2 days ago, Secretary Taft signed the regulations and full service guidelines for implementing the warranty concept embraced by that section.

Madam Secretary, I have carefully reviewed these regulations, as has staff and the committee, and, quite frankly, we are more than disappointed. We are appalled and surprised at what you have done.

The regulations clearly exceed the intent of Congress with respect to warranties on weapons systems, and will only serve to delay further meaningful and realistic implementation of section 794.

Several of the comments your office received from industry speak highly of the warranty concept and say they can live with it. They go on to say in the next breath that the regulations you are promulgating are entirely too complex and are designed more to destroy than to follow through on the intent of the law.

We have been around this place for a long time, Madam Secretary and we know that bureaucrats can, if they want to defeat a law, regulate it to death.

Now, it is not just what we think. It is not just what people in industry think, that is, the one who think straight. But it's what your own shop thinks.

As a matter of fact, Senator Rudman, Senator Stevens and I went over and had breakfast with the Secretary of the Navy and his top people, and we talked about warranties. They said, "We think they're great," and the fact that we have mandatory warranties helped us get a much better contract on a Harrier just a few weeks ago.

We found that the Secretary of the Navy sent to Cap Weinberger an action memorandum, and I will quote from it:

I recommend that opposition to the warranty law be dropped, and instead that we embrace wider application of warranties. The current defense acquisition regulation adequately implements the law and needs only to be made mandatory for weapon system procurement, rather than discretionary, as is the current practice. We proposed the necessary DAR changes to your staff.

They go on to say:

If the current drafts become regulations, we believe it is highly likely that procurement of production equipment will be delayed for substantial periods while government and industry attempt to define its meaning.

He points out that "complicated guidance proposed in the Federal Register and in subsequent redrafts defines a whole new and unnecessary set of rules which only confuse the development of warranties in production contracts."

In February, Madam Secretary, my office contacted you requesting copies of comments to the guidelines that were published in the

Federal Register. You'd think that, as a member of this subcommittee, that I'd be able to get this.

Well, we got parts. On February 23, I received the comments, only to find that there were gaps in the sequentially missing comments, and the missing comments, of course, were the ones that were the favorable ones.

On numerous occasions my staff attempted to obtain the missing documents, only to be told that they were being "looked into."

Yesterday, we finally got copies of these comments, most of which are internal comments generated within your own Department of Defense. Several of these internal comments provide reasonable, commonsense answers to the very concerns raised just a few weeks ago by the Department of Defense before the Senate Armed Services Committee. These comments, Madam Secretary, supportive of warranties, telling you how you could put them together, were dated February 15, 1984, several days before comments were forwarded to my office and well before the hearing before the Armed Services Committee.

WITHHOLDING OF WARRANTY INFORMATION

The question we have to ask in this subcommittee is why the coverup? Aren't we all on the same team together, the Congress and the Department of Defense? Or, are there a few people in your shop who are determined to stop warranties while the Secretary of the Air Force testifies to our committee that yes, they work well. The Secretary of the Navy in a memorandum to Cap Weinberger said you bet they work well. The Chief of the Staff of the Army testified to this subcommittee that they want warranties on their weapon systems because they protect the man in the field as well as our freedom, as well as our taxpayers.

Why were these comments withheld from this subcommittee, comments that in my opinion provide some straightforward solutions to the very concerns that you have been voicing? Why, in spite of industry comments and comments from within the Department of Defense, including the Secretary of the Navy, and the concerns expressed by me and my staff and the other members of this subcommittee, did you proceed with your regulations, even though these regulations will serve to impede, if not prevent, the implementation of the intent of Congress, and knowing full well that less complex and more rational alternatives exist?

The question has to be asked, are you deliberately trying to go against the law of the land.

It seems to me, Madam Secretary, that you have several choices: You can obey the law of the land, or you can subvert the will of the Congress. You can write rational regulations to implement the law, or you can consciously subvert the law by promulgating unworkable, incomprehensible regulations, stated not just by me, but by Secretaries within your own Defense Department. You can heed the advice of thoughtful people within your own establishment who attest to the workability and value of warranties, or you can choose to maintain the status quo so harmful to our national goals by pandering to the whims of those who would continue their incestuous,

nice, little snug relationships with the defense contracting establishment.

Finally, you can stop trying to, as Jonathan Swift would have said, "extract sunbeams from cucumbers," in your attempt to obfuscate, delay, derail, and override the law. So, you can get on with the business at hand by implementing the warranty law as directed.

I think you have to implement the law of the land for the benefit of the taxpayers, for those in the Armed Forces who want weapons that work, as well as for the rest of us who depend upon them to protect our freedom.

INTERDEPARTMENTAL MEMO

Madam Secretary, I have here one of the memos that were withheld from us, again from one of your own departments. Some of the comments are great. There is one right up in front which says, "In fact, we tend to have the most problems where warranty provisions have not been the normal course of business." It goes on to say,

Your draft guidance exceeds the requirements of the law and good management, unnecessarily complicates contract negotiations, dilutes contractor obligation for contract performance, substantially increase contract cost without any commensurate improvement in weapons systems.

This, Madam Secretary, is a comment from your own Department and not from a congressional staffer. It is from people who know weapons procurement.

Finally, in answer to the question about how difficult it is to make warranty systems work on weapons, this morning I got a letter from a French firm, one that is setting up a joint operation with the company of Sanders Associates in Nashua, NH. That's a good State. It has some good, thoughtful people. [General laughter.]

They say, "Our experience and attitude toward warranties may be of interest to you. We automatically warrant all of our equipment against any failure for one year."

Madam Secretary, when I testified before the Armed Services Committee, I was followed by a Defense Department person, and I testified that our NATO allies get warranties. This was pooh-poohed as something we can't get: How can you repair out in the field?

Let me go on to say this. Their warranty includes the replacement on site of all parts and the labor required to do this. An example from the latest material we have furnished the French Army, the DX-150 tank gunnery simulator, may be illustrative. This simulator is fitted on the tanks used in each French regiment by qualified gunners to keep their skills current, and so on. "The 82 DX-150 simulators in the French Army each averaged 350 hours of use last year. There were five breakdowns, all fixed on site within hours of notification."

Madam Secretary, it is working everywhere else in the world. Key people in our own Defense Establishment say that it is a significant step forward. Why, why do you keep dragging your heels? Why have you come up with page after page of gobbledygook called

regulations in what can only be looked upon as a deliberate attempt to override the law of the land?

Ms. GILLEECE. Mr. Andrews, answering some of the statements that you have just made and some of the questions you have asked——

Senator ANDREWS. Would you please pull the microphone a little bit closer, Ms. Gilleece?

Ms. GILLEECE. Yes, I would like to answer some of the matters you have brought to the attention of the Department. First of all, I will unequivocally say that there was no intention for, nor was there any coverup. In fact, every piece of paper that came into the office on warranties was numbered and was logged in. This meant hand written notes from people within the Department; this meant anything, no matter what it was, was logged in.

What we sent you originally was all of the comments in response to the Federal Register. What we then gave you yesterday was the missing numbers which equated to hand-written notes and responses to letters that came from the Department.

Senator ANDREWS. Madam Secretary, one of them that was held out is a memorandum that is numbered 23, from the Director of Program Analysis and Evaluation, David Chu. It is certainly not handwritten. It is typed. It is a memorandum and it spells out comments on how this thing is working. He says, "I believe that a manual should be developed." It goes on to talk about different things that went entirely too far and certainly should have been forwarded to this committee. It contains at least five or six typewritten pages.

It goes on to point out interesting things, such as "section 794 imposes no restrictions on how the cost effectiveness analysis is performed, nor does it require an analysis of cost effectiveness unless a waiver is sought."

This is your section talking about that kind of analysis. It takes apart, paragraph by paragraph, the rules you promulgated.

I don't know why this was held back from us. It certainly is not confidential communication, at least it should not be from a member of Congress.

Ms. GILLEECE. As I mentioned, Senator Andrews, what we sent you were the responses to the Federal Register. We did provide you yesterday, as you know, all of the comments that were given, either unsolicited, as Dr. David Chu's was, or else responses to letters that we sent out.

POLICY GUIDANCE

Discussing the policy guidance, for just a moment, I will tell you, as I mentioned before, that we clearly attempted, within the constraints of the law, to make absolutely sure that we complied with the intent of this committee and the intent of Congress. We did not make any decision regarding any of the words within the policy guidance without thorough coordination with our General Counsel's Office. We must comply, as you know, with specifically what the law requires, and we continue to believe that we have done so, and we are supported by our General Counsel's Office.

As to the individual service, the Navy, which did respond in a manner as you have read before us today, and you have alluded to a number of times, there has been a subsequent meeting with the Navy General Counsel's Office and the Department of Defense General Counsel's Office and, as you will note, the policy guidance was issued to all of the services, which includes the Navy.

As far as the NATO allies are concerned, as was indicated before the Senate Armed Services Committee, we said we would undertake a survey of the utilization within our NATO allies of warranties. We are doing that, and we would be glad to provide that to this committee when that has been completed.

[The information follows:]

UTILIZATION OF WARRANTIES BY NATO ALLIES

Contracts by foreign NATO Governments usually place design responsibility on the contractor, but have rarely contained an express warranty of performance. Europeans regard warranties as too costly to justify, and likely to lead to disputes over liabilities. Implied warranties may be invoked on the basis of, for example, latent defects on workmanship or materials.

FLEXIBILITY WITHIN LEGISLATION NEEDED

Ms. GILLEECE. By way of comment, as you know, we are still concerned that we need further flexibility within the legislation and we do not intend in any way to circumvent the legislative process in requesting that change. Quite the contrary, as I said before and have continually said throughout, we are as supportive of warranties as any of the people whom you have mentioned, and we will continue to support warranties, where appropriate.

Senator ANDREWS. Well, Madam Secretary, you have a lot of "where appropriates" and such in there.

I may be exceeding my time, but this is an extremely important issue. I won't take too much of it because we do have the oversight capability. You are going to have to provide us with some specifics on why you are doing some of these ridiculous things.

We have had testimony before this subcommittee from members of the Defense Department that the law is very loosely drawn. Secretary Orr said that he likes 794 because it gives him leeway. You now just said that you need relief from specific parts of the law. What relief? Where?

This committee and the Congress itself have not been able to ascertain what specific amendments you need. The fact that you withheld information from within the Department before we testified to the authorizing committee probably helped to complicate things because not having the benefit of some of these statements by people within the Pentagon, the statements we made to the authorizing committee were not as thorough as they otherwise would have been.

It looks like it is all a deliberate coverup to confuse and to make this so complicated that it simply is not going to work, and you are going to have to ask for waiver after waiver. Those are almost precisely the words the Secretary of the Navy used, and the Secretary of the Air Force, sitting here as a member of the team, said that he found that his attorneys could make it work well. The Secretary of Defense, Cap Weinberger, told me in a hearing before the Budget

Committee—and we will hear Cap at the end of these hearings, when everything is all summed up—that you bet, Senator, we are going along with the warranty requirement.

The very next day, in the bowels of the Pentagon, your Public Information Officer said no way, we are not going along.

The next day Cap calls me at the farm and he says, Senator, we are going on.

You know, we have been off again, on again, in again, out again until it is confusing. But it is such a serious matter, Madam Secretary, that we expect to have you come up with a workable way of implementing this law. If you can't, then we will have some type of oversight hearings to get into it in depth and perhaps force you by pointing out that you are illegally committing money to stop some contracts. That might make you take another look.

If you violate the law, I would hope the people that you are contracting with in violation of the law realize that this subcommittee and the Congress can suddenly force you to stop the payment of funds for these weapons.

It is a serious business.

My advice is that you live up to the law and you get on with the business of making it worthwhile.

I was told last night that Armed Services asked DOD to come up with alternative language to section 794.

ALTERNATIVE LANGUAGE TO SEC. 794

Do you have alternative language? I asked you that a moment ago?

Ms. GILLEECE. No, sir. What we have is a request from Senator Tower, as chairman of the Armed Services Committee, to develop alternative language. We are currently going to be working toward that. We have been focusing, of course, on the policy guidance.

Senator ANDREWS. Would you try to provide that language to this subcommittee as well, as soon as it is ready?

Ms. GILLEECE. Absolutely, sir.

Senator ANDREWS. Do you have any dream that you might get that law changed?

Ms. GILLEECE. Sir, we will only follow the congressional desires in that matter.

Senator ANDREWS. Our hint to you would be that you get these records straightened out and then you won't have to beat around the bush.

Would you put into the record the proposal that you are going to make to the Armed Services Committee?

Ms. GILLEECE. Yes, sir. We would be pleased to provide it to you at that time.

[The information follows:]

APRIL 13, 1984.

HON. TED STEVENS,
Chairman, Subcommittee on Defense Appropriations,
U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: During recent testimony before the subcommittee we indicated our support for obtaining cost effective warranties for Defense purchases and assured you that we would supply you with a copy of proposed permanent legislation being prepared by the Department in response to Senator Tower's request for assistance in developing a legislative provision that will be workable while further-

ing the aims underlying Section 794 of the Department of Defense Appropriation Act, 1984.

Attached is a draft of the provision that we have sent to the Senate Armed Services Committee. This provision will permit the Department of Defense to obtain cost effective warranties for the weapon systems that we buy.

Sincerely,

HARVEY J. GORDON,
Assistant Deputy Under Secretary
of Defense for Acquisition.
APRIL 13, 1984.

Hon. MELVIN PRICE,
Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: During recent congressional testimony, we indicated our support for obtaining cost effective warranties for Defense purchases and assured you that we would supply you with a copy of proposed permanent legislation being prepared by the Department in response to Senator Tower's request for assistance in developing a legislative provision that will be workable while furthering the aims underlying Section 794 of the Department of Defense Appropriation Act, 1984.

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APRIL 13, 1984.

Hon. MARK ANDREWS,
U.S. Senate,
Washington, DC.

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APRIL 13, 1984.

Hon. JOSEPH P. ADDABBO,
Chairman, Subcommittee on Defense Appropriations,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: During recent testimony before the subcommittee we indicated our support for obtaining cost effective warranties for Defense purchases and assured you that we would supply you with a copy of proposed permanent legislation being prepared by the Department in response to Senator Tower's request for assistance in developing a legislative provision that will be workable while furthering the aims underlying Section 794 of the Department of Defense Appropriation Act, 1984.

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Sincerely,

HARVEY J. GORDON,
Assistant Deputy Under Secretary
of Defense for Acquisition.

APRIL 11, 1984.

Mr. JAMES F. MCGOVERN,
Staff Director and Chief Counsel, Committee on Armed Services,
U.S. Senate, Washington, DC.

DEAR MR. MCGOVERN: Senator Tower, in his letter to Secretary Weinberger dated February 29, 1984, asked us to develop a legislative provision that would further the aims of section 794 of the Department of Defense Appropriations Act, 1984, and would eliminate the public policy concerns and the problems identified in administering section 794 as now written. Attached is a draft of an alternative to section 794 that accomplishes this.

One of the major problems with section 794 is that the specifics of the guaranty required to be obtained in that section may not be the most cost effective guaranty for a particular purchase. Section 794 as now written provides for a waiver of the guaranty requirement if the guaranty required by the statute is not cost effective. The attached draft eliminates this problem by requiring warranties when ever a cost effective warranty can be obtained without prescribing the specific terms of the warranty. Under this language the Department would be able to tailor the warranty to the circumstances of the particular purchase of insure cost effectiveness.

A number of concerns have been expressed that section 794 as now written may inhibit the ability of the Department and its contractors in obtaining competition or result in unintended, unfair guaranty responsibilities being imposed. Particular concerns have been expressed about the impact of section 794 on small business subcontractors and contractors that were not responsible for the design of the time. The attached draft will permit the Secretary of Defense to issue regulations that will permit the use of warranties that are fully consistent with public policy interests.

Secretary Weinberger and other Department of Defense spokesmen have often stated that this Department favors the use of warranties. The attached language, if enacted as permanent legislation, would be consistent with these statements and will fulfill both the aims of the drafters of section 794 and the goals that Senator Tower set forth in his letter.

Sincerely,

L. NIEDERLEHNER,
Acting General Counsel.

WARRANTY LANGUAGE FOR AN AUTHORIZING STATUTE

SEC. XXX. (a) The Secretary of Defense shall issue regulations requiring that, when cost effective, warranties shall be included in contracts for the production of weapon systems.

(b) a written warranty provided pursuant to subsection (a) shall not apply in the case of any weapon system or component thereof which has been furnished by the Government to a contractor.

(c) The Secretary of Defense may provide for a waiver of the requirements for a warranty where—

(1) the waiver is necessary in the interest of the national defense; and

(2) the Committees on Armed Services and Appropriations of the Senate and the House of Representatives are notified in writing of his intention to waive such requirements. The notification shall include an explanation of the reasons for the waiver.

(d) The requirements for written warranties provided pursuant to subsection (a) hereof shall not cover combat damage.

GUARANTY POLICY GUIDANCE

Senator ANDREWS. Thank you.
I have exceeded my time.

Senator RUDMAN. Before calling on Senator D'Amato, let me just make an observation to Senator Andrews and to Ms. Gilleece.

We received, dated March 14, the memorandum for guaranty policy guidance.

Now that may be just a coincidence, Ms. Gilleece. But it reminds me of something. When I was practicing law, I was a pretty good trial lawyer. If somebody wanted a deposition that was in my possession for a trial that was beginning on Tuesday morning, I would try to get it to him at 3 o'clock in the morning on Tuesday morning. I would never want to give him a lot of time to look at it. That is called a good trial tactic.

Now, as far as I am concerned, none of us up here are very naive. I think we are being manipulated a little bit by somebody—not you, but by somebody—with a little bit of what I would call a neat trial tactic.

You know, I practiced law for a long time. But I am not capable of sitting here and having an intelligent discussion with you, which I would like to have, on regulations interpreting a statute that is 5 or 6 pages long which, in a cursory reading, have some gaps in them that you could drive an Abrams tank through.

Let me point out to you that on page 2 of the guaranty itself is the following language, under subparagraph (h):

For purposes of this clause, the term "performance requirements" does not include performance characteristics that are described as goals or objectives.

Well, I'll tell you, I think I am a good enough lawyer to get around any warranty in the world on that basis.

I will just suggest something to my colleague from North Dakota and my colleague from New York. We have great respect for you and what you do.

Now you are up here as a witness representing the Department. William H. Taft, IV, the current Deputy Secretary of Defense who made this available to us last evening, was former General Counsel to the Department. I assume by that that he is a very competent lawyer. I am going to suggest that we put this into the hands of our counsel, aided by Senate legal counsel, that we get a good, thorough interpretation of whether or not these regulations conform to our intent, and we have a hearing and invite Mr. Taft.

Senator ANDREWS. I think that is an excellent idea.

Let me make one other suggestion, that you provide something for the record, Madam Secretary.

I mentioned your contacts with industry. I mentioned the fact that there was a lobbying situation going on up here where key industry types were passing out plain white sheets of paper talking about how bad the warranty was. Some of that was aided by people in your backyard.

REQUEST OF U.S. BUSINESS AND INDUSTRIAL COUNCIL

There is a request, as I understand it, from the U.S. Business and Industrial Council, which is also concerned about this, Madam Secretary, asking you to supply the names and addresses of all defense contractors that you have communicated with during the period of this waiver. When you provide that under the Freedom of Information request, this subcommittee would like a copy of that because

we would like to know those contacts that you have made and what type of, shall we say, organized group effort has been put forth with the contractors and a few of those of you within the Defense Department working together to try to overrule this law by various means—outright amendment, which is the clean, straightforward way to do it, or complicated regulation writing, which seems to be the current method of choice.

So, when you have that, we would appreciate it if you would send that to the committee.

[CLERK'S NOTE: The requested document by the U.S. Business and Industrial Council is retained in the subcommittee files.]

Senator RUDMAN. I will now give Senator D'Amato 15 minutes time because he has waited so patiently.

Ms. Gilleece, let me ask you to convey to your superiors in the Department that some of us here are not terribly pleased on receiving this item the night before the hearing, and in some cases the morning of the hearing.

I fully intend to recommend to Chairman Stevens that we have a thorough analysis done of this regulation to see whether it is conforming or not.

There may be some problems with Senator Andrews' original warranty language. As you will recall, we discussed that and I discussed it with my friend from North Dakota. But we are trying to get something done, and it just seems to me that giving us the evidence that we have to examine for this hearing the night before the hearing makes it very difficult on us.

I intend to press for further public hearings on the matter.

Senator D'Amato.

Senator D'AMATO. Thank you, Mr. Chairman.

GAO REVIEW OF PROCUREMENT PROCESS

Last year, Mr. Chairman, I asked the General Accounting Office to review the Defense Department's spare-parts-procurement process. I have just this past Friday received the preliminary results of their review. Frankly, I want to tell you that it is shocking. The period of time covered is some 42 months from January 1980 through June 30, 1983.

The General Accounting Office visited a major procurement center belonging to each of the services and one belonging to the Defense Logistics Agency. While all of these procurement centers are making some efforts to improve, there are serious, serious shortcomings and problems at each center.

Let me begin by touching on just a few of the highlights. These are just a few.

The General Accounting Office visited four procurement centers and performed price comparisons on 369,000 separate items with a total value of \$3.7 billion. The study found that on an annual basis, 13.6 percent of the sample, or 50,000 procurements, showed price increases of more than 25 percent.

Now these purchases by themselves cost the taxpayers, the U.S. taxpayers, \$424 million, or 11.3 percent of the total value of the procurement in this study.

Let us understand that this is a portion of the total.

The report shows, in my opinion, very clearly that holding down price increases was not a high priority for any of the centers. At each center, the GAO selected approximately 100 procurements showing price increases of over 25 percent on an annual basis, and examined in detail what buyers had done to find out if the prices the Government would pay for the items was fair and reasonable.

The results of this detailed examination are horrendous.

For example—and I do not intend to go into too much detail, but I think it is important that we touch on just some of them to give you an idea—at the Air Force's San Antonio Air Logistics Center, 107 procurements were reviewed in detail. In only 31, or 29 percent of them, did the GAO find that the buyer's pricing actions were reasonable under the circumstances.

You know, when we get reports of maybe 5 to 10 percent, and I hear these figures, your testimony does not square with the facts. It is a horror show. It is an outrage.

Let me tell you something. Instead of spending so much time and effort in fighting reasonable rules, regulations, and laws that the Congress passes, whether it be on warranties or other things, you should be cleaning up your act in procurement, bringing in a real study team, and doing something immediately.

I am not going to continue to vote for the kinds of defense appropriations that I have supported for every major weapons system if we continue to abuse the public trust. You've done a horrible job.

The report does not say that anything really has improved in 1982 or 1983. I don't think it has improved much in 1984, either, not with the attitudes that I see expressed.

Worse, in 40, or 37.4 percent, of the procurements reviewed, the GAO found—in 37 percent—found that the buyers' actions were inadequate.

Worse news is yet to come.

The remaining 36 procurements had to be excluded from the sample, when the San Antonio Air Logistics Center automated procurement history computer tapes were screened for all procurements with price increases of 25 percent on an annual basis. These 36 purchases were included in the sample. Yet, when specific buys were randomly selected to undergo detailed review, the GAO discovered that 28 out of the 36 were included in the sample because of coding errors. They further discovered that eight procurements could not be analyzed in detail because their contract files had inadvertently been destroyed.

This means that 26.2 percent of the buys on the automated-procurement-history tapes were coded wrong, based on the sample. It means that 7.5 percent of the contract files could not be found—in this case, because they had been destroyed.

You don't have a data base. You don't have an adequate method of recordkeeping. We are talking about billions of dollars. After you have sent thousands of letters commending people for doing wonderful jobs by saving \$200,000, why their successes pales in significance in terms of this serious systemic failure.

It is a disgrace.

But I should understand that because, after all, when you have the head of the DCAA who, instead of rewarding their auditors for looking into spare-parts overcharges he and his deputies try to

have them fired, or transferred. They abuse the person, violating his rights.

What does the Defense Department do? You say to Starrett, and his deputies, and the rest of them to take a leave of absence. You take administrative action. Instead, Secretary Weinberger hides behind an administrative procedure that will drag on for years, while Starrett remains in office.

Where is the departmental audit and oversight? Why should the men and women who serve in the Armed Forces receive anything but the best, the most effective, and the most efficient administration? They are not getting it. They are not getting fair treatment.

I would suggest to you that our men and women who serve us in the armed services are the ones who are being shortchanged in addition to the American public. This is absolutely one of the most incredible, indicting studies in terms of the manner and efficiency in which the Department is being run, as it relates to spare parts.

I don't think you can give a reasonable explanation.

I am going to continue. You deserve to hear some of the details. What an indictment this is.

If this critical management tool, your own codes, your own records, your own legal records of procurements are this poorly maintained, what confidence can we have, indeed, what confidence can the American people have in the answers that you give us as to our questions on these matters?

How can you tell if your reforms are working if your data base is inaccurate?

I won't go through the results from the other centers in such length, but I want to put these results into the record. The Defense Electronics Supply Center shows that out of 100 randomly selected buys, proper action was taken to justify price increases in only nine cases. No action or very minimal action was taken in 82 of these 100 purchases. Also, nine of these randomly selected procurements were inaccurately coded.

At the Army's Troop Support and Aviation Materials Ready Command, 118 purchases were randomly selected for detailed review. In 49 of 118 procurements, personnel did not take adequate actions to justify acceptance on increased prices.

You are doing nothing. It is a sham. Don't tell us things like, oh, we had 10,000 letters and we recovered \$200,000. It's a joke.

Here in 29 cases, or 24.6 percent of the samples, they were incorrectly coded; and six contract files, or 5 percent, could not even be located.

The Navy Ships Parts Control Center had 191 procurements randomly selected for detailed review, and 47 percent were incorrectly coded. And 12 contract files, or 6.3 percent, could not be located.

As I said at the beginning, these are preliminary results.

Only 50 of the remaining procurements have been reviewed in detail. But in 15 out of the 50 that were reviewed in detail, 30 percent of the cases, the buyers' actions were found to have been inadequate to justify accepting prices where significant price growth had occurred.

The study showed that competition helped keep price increases down in larger purchases. The study also found that the leadership at these procurement centers was concerned about the problems

GAO auditors have uncovered and were taking steps to improve the performance of their buyers and reduce price increases.

I think their efforts are wonderful. I think they should be applauded.

But I want to hear from you your reaction to this information. Were you aware of these serious shortcomings? Do you think for example, that when you testify about spending \$200 million to automate your technical data package and storage and retrieval process, should we not first begin by correcting the problems with procurement history tapes in the contract files?

Madam Secretary?

Ms. GILLECE. Senator, I feel at a loss to be able to reply specifically. We have not seen those preliminary results of the GAO's review.

The only thing I can ask that you do is to share those results with us. Let us work with you and your staff to review them, and if there are changes that need to be made to our management techniques, we will certainly undertake to do those as a result of the information provided.

SPARE PARTS

We will also mention that the last time we appeared before you concerning spare parts, what the committee concluded and what we agreed with, is that much of what we need to do is to make sure that we increase the number of personnel specifically identified to work the spare parts issue and to make sure they are trained.

That is why we have provided to the committee this morning, information concerning personnel, which, as you indicated in the final part of your presentation, shows that management was concerned.

SPANTON CASE

Senator D'AMATO. Last year, the *Spanton* case became a cause celebre. The officials who were in charge of that matter, the head of DCAA, his deputy, and the regional administrator, have been charged with violating his rights. An administrative law judge has just concluded hearing the case. I don't know how long it will be before he comes down with a decision. We are certain that the decision, if it goes against Mr. Starrett and the others, Mr. Brown, Mr. Tueller, and Mr. Evans will be appealed and this will be a lengthy process.

What signal are we giving the American public when we fail to exercise the kind of leadership we should? When the Secretary fails to look into this himself and take action?

Do you believe that Starrett, Brown, Tueller, and Evans should continue active service in prestigious positions? Do you believe their continued service adds credibility to the administration's so-called efforts to reduce waste, fraud, and abuse in defense procurement?

Don't you see an obvious problem there? Are we going to hide behind the Merit Systems Protection Board and, therefore, let them continue to run the DCAA? If you find somebody in a position who has violated his public trust, doesn't the Department have

the ability to suspend that person pending the outcome of that investigation? Suspend him with pay.

I mean, what are we doing? Why the coverup? Do you think the Department is giving the American people or this Congress the right idea in terms of your commitment to deal with these kinds of situations?

Ms. GILLEECE. Senator, again, I apologize for not being more responsive, but I could not in any way comment on that case. I have no responsibility for it.

Senator D'AMATO. Who does? Aren't they under your jurisdiction?

Ms. GILLEECE. The Comptroller within the Department of Defense, sir, has the responsibility for the Defense Contract Audit Agency.

Senator D'AMATO. That does not come under your responsibility at all?

Ms. GILLEECE. No, sir, I work for Dr. DeLauer, Under Secretary of Defense for Research and Engineering.

Senator D'AMATO. I have a number of detailed questions, Mr. Chairman, which I am going to submit for the record.

I would just suggest that this GAO report on these four centers is merely the tip of the iceberg. I think it is an absolute disgrace that we have this kind of continuing mismanagement.

You tell me that you looked into it and overcharges are involved in only 5 to 10 percent, Mr. Kemp, and you make it sound like the 5 to 10 percent is exaggerated. This does not square with the records. You don't even have records into which one can really put any kind of credibility.

I want to tell you something: as long as the Department has Starrett and company in charge of the DCAA, and Cap Weinberger is responsible, you will have no credibility so far as this Senator is concerned when you report on "successes" in your efforts to give the American public its dollar's worth.

It is an absolute disgrace.

If Starrett worked for me, I would not have to wait for a court of law to convict him, and that is what the Department is doing. You are saying let's give him his legal rights.

That matter should have been under administrative review, not by another agency, not by the Merit Protection Board, but by the Defense Department. You should have called him in and begun an adverse personnel action immediately. Until you do that, the Department will have no credibility.

Thank you, Mr. Chairman.

Senator RUDMAN. Ms. Gilleece, I have a series of questions which I will address either to you or to other members of your panel. Please feel free to designate any of the others to answer the questions.

AUDIT FINDINGS

The Defense Department Inspector General issued a report recently, with which I am sure you are all familiar, certainly the Army is familiar with it, in which he indicated the Army had failed to take into account certain audit findings on component

prices in the negotiation of Black Hawk helicopter contracts. However, the prime contractor, according to the Inspector General, used the audit data and ultimately profited by bidding higher prices to the Army and negotiating lower costs with the subcontractors. The estimation was \$30 million to \$40 million was lost by the Army due to this particular negligence, as it was referred to.

First, what are you doing to prevent this from happening again in other programs?

Second, is there any way to recover these moneys?

General STALLINGS. Pardon me for just one moment, sir.

[Pause.]

General STALLINGS. Yes, sir, the contractor in question was Sikorsky. The information from DCAA did indicate that we did not get as good a break as we should have from the subcontractor, or from a vendor, as to his passing on that cost to us from the prime.

I cannot answer the question today as to how much we will be able to gain back based on what the final negotiations are. In fact, as I recall now, the contract had already been signed at the time.

So, we are now going to have to go back to Sikorsky for whatever remedial rights we may have in that area. And we are pursuing it.

Senator RUDMAN. Wouldn't it seem to be kind of a poor practice to have the Army fail to consider the audit findings of its own people on these component prices? Had that been done, then we would not be in the mess we are in, I would expect.

General STALLINGS. Sir, I agree with you. In that particular case, we just did not do as well as we should have on getting the prices down to where they should have been. I think there were some good lessons learned out of that case with Sikorsky, and our Aviation Buying Command has subsequently tightened up its reviews so that we do consider all those DCAA reports before we go to the table in our negotiations.

Senator RUDMAN. If I read your title correctly, General, you are the Director of Procurement and Production at DARCOM.

General STALLINGS. That's correct, sir.

Senator RUDMAN. So, the audit's findings would come to people who are within your command and report to you or your subordinates.

Is that correct?

General STALLINGS. Yes, sir. Specifically, the buying was done through the Aviation Command in St. Louis, and the DCAA audit reports would go to the contracting officer and to his superior there in the Aviation Command. Of course, if something like that happens where we make a mistake, surely that would come to headquarters and I would have knowledge of it.

Senator RUDMAN. Well, I would hope, and I am sure the committee would hope, that to the extent we fund all of these positions, we would try to have people to do this kind of auditing, and we would not get into a situation, with all of the procurement, particularly as we are getting into the maturity phase of all of these modernization programs and we are getting into production, where vendors are getting prices from subcontractors that we know about that are not reflected properly in the final bid of the prime.

General STALLINGS. Sir, we learned from that particular case. We have held sessions with each of our buying commands, both for the

directors of procurement and for the commanders themselves who are the heads of the contracting agencies, the HCA there. For example, from that we learned, and we now currently have a case where we are looking at procurement for the DIVAD gun with Ford Aerospace. It was clear that in many of the spares that we were buying from them, they were overpriced. We since have gone back into negotiation with Ford Aerospace and, in some cases, have refused to buy the parts. Our leadership has decided that unless we bring those parts in line with the information that was provided by DCAA and our own costing people, we just flat out will not buy them.

Senator RUDMAN. Well, what are you going to do for the parts?

General STALLINGS. Sir, if we are not able to arrive at a price that is fair and reasonable for those parts on the DIVAD gun, we may not buy it.

Senator RUDMAN. Well, I am glad to hear that. It seems to me that one of the ways DOD has been whipsawed in the past—and I am not saying it was any of you at this table, but over a period of time lots of interesting little games have been played, such as buy in cheap and renegotiate, and then sock it to them with the spares. So, the ratio of spare acquisition to system acquisition is totally out of whack.

A friend of mine once told me something about a German car, I think the BMW. He said that if you bought a BMW in 1979 for \$16,000, which you could, he had figured out that to buy all of the parts to build one from the dealer would cost \$85,000. I sometimes think that DOD has gotten into the same, unfortunate position.

I would hope that the audit agencies would look very closely at this, and that those kinds of decisions on systems would be followed.

Obviously there are some very good contractors out there. I don't think we ought to leave this hearing with any broad indictment of the defense contracting establishment and the defense industry that everyone is out there ready to hose it to the Federal Government. But there are some people who have done so, and I think it is your job to find this out.

FIXED PRICE REDETERMINABLE CONTRACT ARRANGEMENTS

Madam Secretary, for some time DOD has been fond of using what are called fixed price redeterminable contract arrangements which permit prices to vary between the time of ordering and the time of delivery. Last summer, the IG recommended that DOD discontinue this contract type because of the large variances between the bids and the actual prices. I wonder if you might tell us whether this recommendation has been implemented completely, partially, or not at all.

[Pause.]

Ms. GILLECE. Mr. Chairman, in the Secretary of Defenses 10-point program memorandum to the services it states, "You should continue to phase our existing portions of ordering requirements which allow the manufacturer to redetermine prices and make every effort to obtain firm fixed price contracts."

I have also just discussed this with my colleagues, and they inform me that they have done that.

Senator RUDMAN. All right.

AIR FORCE OVERSTATEMENT OF CONSUMABLE PARTS NEEDS

GAO audits found that the Air Force had overstated consumable parts needs by about \$130 million because production leadtimes were overestimated. Consequently, more items were ordered than required in the supply system.

Does the Air Force examine the ramifications to the budget of leadtime estimates because they can have a very real effect on those budget requests?

Mr. KEMP. Mr. Chairman, I am unfamiliar with that aspect. It exceeds my area of responsibility.

Senator RUDMAN. Would you answer that for the record?

Mr. KEMP. We will answer it for the record.

[The information follows:]

CONSUMABLE PARTS

The Air Force is well aware of the impact that inaccurate production leadtime estimates can have on budget requests. Since the GAO audits were performed the Air Force has improved procedures and controls to ensure appropriate production leadtimes are maintained in its computation of spare parts requirements. Approximately one year ago, the Air Force implemented a program to ensure compliance with existing policy regarding the use of leadtime data in the computation. The program emphasizes the need for accuracy and includes specific procedures for quality control. The success of this program is indicated by interim results of a followup audit of this area currently being conducted by the GAO. Upon reexamining previously reviewed items, they found that production leadtimes for a very high percentage of the items had decreased.

ADDITIONAL AUDITORS AND PROCUREMENT PERSONNEL

Senator RUDMAN. Last year, Congress added funds for additional auditors and procurement personnel. As a matter of fact, there were 700 personnel funded by Congress last year. You are budgeting for 5,000 additional spaces for spare parts management.

Can you tell us how all of these people are going to be allocated? Is that number correct, 5,000?

Ms. GILLEECE. Mr. Chairman, it is approximately 4,000.

Senator RUDMAN. I don't know—maybe we ought not to hire all those people and just pay the high price for the parts. It might be cheaper, I don't know. [General laughter.]

I mean, 4,000 to 5,000 people we are going to hire. Will that be cost effective? I mean, maybe we are attacking this too vigorously, Madam Secretary. That is a lot of people. That is one combat brigade, 4,000 people.

Ms. GILLEECE. Sir, as you are aware, it has been a management prerogative of the Secretary of Defense. It has flowed through to the individual services in order to make absolutely sure that at the working level there is the necessary attention. The personnel are required.

I can assure you that they are being utilized in various functional areas, be it value engineering, the Competition Advocate Pro-

gram or in other areas of the logistics community involved in the spare parts matters.

Senator RUDMAN. I am curious, what level, what civil service level, would most of these people be? Do you have any idea what that number is? Would these be accountants, investigators, or computer operators?

Can you answer that, Admiral?

Admiral GIORDANO. Yes, sir.

Senator, in the Navy's program, some of the additional people would be contractor personnel, who you would hire to get the job done and then relieve. Those you would bring in-house permanently would be people to work in your procurement shops and in your technical data shops. You are not talking about high grades. In many cases you are talking about personnel in the field at 10 to 12 grade levels.

Senator RUDMAN. So, if my mathematics are correct, that would be about \$100 to \$125 million that we are talking about for those people, if we were to take that grade level as an average.

SPACES AND ACQUISITION BUDGET

Tell me again the total spares and acquisition budget for this year. Do you know that number?

[Pause.]

Senator RUDMAN. Staff has advised me that it is \$10 to \$12 billion, so I will answer that question myself.

Ms. Gilleece, that figure of 4,000 to 5,000 just jumped out at me. I guess to some extent that justifies some of the things that my friend from New York said, that we don't have the information, that we are not managing it. You are now saying yes, we will, if you give us the people.

Obviously if you get this in this year's request and you get these people, or most of them, I would say that that imposes a very high burden on the Department, to manage this much better. I think that is what Admiral Giordano said in his statement.

Will you be back for more next year, by any chance, or do you think 4,000 to 5,000 might do it?

Ms. GILLEECE. Sir, I can give you no guarantees, if you will, on that.

Senator RUDMAN. Oh, we don't want to mention the word "guarantees," Ms. Gilleece. [General laughter.]

I think we have had about enough of "guarantees" today.

FEDERAL ACQUISITION REGULATIONS

We understand that the Department is going to implement new Federal acquisition regulations in April.

Ms. GILLEECE. Yes, sir.

Senator RUDMAN. Could you tell us what changes this will make in how you do your procurement business.

Ms. GILLEECE. The President signed Executive Order 12352 on March 17, 1982. It encompassed a number of different acquisition improvements, one of which was to complete a single Federal Acquisition Regulation [FAR]. We have worked with our civil agency compatriots and we have developed that single regulation.

However, each of the agencies has individual problems, we, of course, buying major weapon systems and no other agency doing so. Thus, we also have a Department of Defense supplement to the FAR.

The intent at the time of writing the FAR was to make sure that there were no policy changes and no major changes to the acquisition process through the development of the regulation. Making it easier to understand for the working level people was the goal, as well as making it easier for someone to pick up and locate within the FAR a particular item of concern. We believe that we have accomplished that.

As you mentioned on April 1, we will implement. We know that there are some things that will have to be worked out. We are aware of some already. The Defense Acquisition Regulatory Council and the Civilian Agency Acquisition Council will work together to resolve the problems that currently have been identified by people both within and outside the Government.

NAVY POLICY ON ENGINEERING PROPOSALS

Senator RUDMAN. Well, to follow with a generally related question, the Navy has adopted what I think is a very interesting policy, which requires the Secretary to approve all proposed engineering change proposals, ECP's. That is a Navy policy.

I raised that issue with Secretary Lehman with particular reference to the ECP on the EC-130Q aircraft for communications upgrade for so-called E-6A TACAMO communications link.

The issue has been resolved, but the Navy claimed that \$77.8 million was saved last year alone by use of this procedure, having those ECP's go to that level for approval, up into his staff, including, of course, outyear procurement costs.

It seems like a very good idea to us as we have examined it in relation to certain programs. What are the other services doing in terms of trying more closely to control the ECP procedure? I think you would all agree that some of the great cost growths have occurred in that area.

Would you comment on that General Stallings, Mr. Kemp, and Admiral Giordano?

General STALLINGS. To the best of my knowledge we have not raised the thresholds of the people who approve the ECP's. The engineering change proposal comes to the contracting officer. I guess I would like to think for a minute if there is a dollar threshold where it would go to the HCA, who is the major general who commands the Buying Command.

I think that there is. I would like to furnish that for the record. Senator RUDMAN. Fine.

[The information follows:]

ENGINEERING CHANGE PROPOSAL

Within the Army, there are different approval levels and dollar thresholds, depending on the type of contract and the cost of the ECP involved.

Policy for approval of cost-increasing ECPs for multiyear fixed price hardware contracts is: For DOD Major Systems, Designated Acquisition Programs and selected Department of the Army Programs, approval is at the Lieutenant General level;

and for other Army systems, approval must be by the Commander of the Buying Command.

For other than multi-year fixed price hardware contracts, the Army has no policy requiring elevating the level of approval for ECPs. Some of the Buying Commands have established procedures that elevate the approval level up to their Commanders.

Senator RUDMAN. Would you furnish that, too, for us, Mr. Kemp?

Mr. KEMP. We have, to my knowledge, no procedures that require forwarding it into the Pentagon in any form. The responsibility for our programs lie with our program directors, our program managers. We expect them to exercise reasonable and prudent judgment in approving ECP's in dealing with their individual programs and operating within their individual budgets.

I believe that is the procedure that we follow. If there is anything to the contrary, I will provide that to the committee.

[The information follows:]

APPROVING ECP'S

Engineering Change Proposals can involve production line changes and/or modifications to delivered units. The modification portion of an ECP requires approval by the implementing command or HQ USAF depending on the type, extent, and cost of the modification. Also, if an ECP's cost would cause a program manager to exceed his budget for ECPs or if the ECP affects any preestablished cost, performance, or schedule threshold the ECP must be approved at higher headquarters.

ARMY ENGINEERING CHANGE PROPOSALS

General STALLINGS. Sir, the same is true for the Army, now that I think about it. The engineering change proposal, where we have a project manager, the project manager, as long as he has configuration management, is the official who approves the engineering change proposal.

Senator RUDMAN. Is there a threshold either in the Army or in the Air Force at which the ECP is so major that it must go up to a higher level?

General STALLINGS. No, sir. I am going to make sure and supply this for the record, but I am almost positive that we allow our project managers to approve that.

Now, if it is of such a nature that it has great dollars with it, there is no question in my mind that a project manager who is a full colonel or a brigadier general would bring that to the leadership of the Army to discuss it before he did anything that would not make prudent and common business sense.

I feel pretty confident that we allow our project managers the decision on ECP's.

[The information follows:]

ECP THRESHOLD

Within the Army, there is no stated dollar threshold that requires an ECP be forwarded to a higher level. As was stated earlier, we do have specific requirements for cost increasing ECPs on multi-year fixed price hardware contracts that require approval at the Major General or Lieutenant General level.

For other types of contracts, the project manager generally has the decision authority, subject to buying command regulation or procedures. As was stated earlier, some of our Buying Commands have imposed dollar thresholds that require ECPs be elevated up to the Major General level. We do not have an Army-wide policy on this.

ENGINEERING CHANGE PROPOSAL FOR B-1B AIRCRAFT

Senator RUDMAN. Mr. Kemp.

Mr. KEMP. Our process is essentially the same. There are periodic reviews of major programs and anything that would have a significant effect on breaking the UCR's thresholds would, of course, be presented to upper level management for review, consideration, and approval.

Senator RUDMAN. As a matter of fact, you have one major exception to that in one of your major programs. Am I correct that, under the submission and under the agreements, any engineering change proposal for the B-1B must go to the Secretary of Defense?

Mr. KEMP. That may be true. I am not in the chain of command on the B-1B, sir. There may be a specific restriction on that.

[The information follows:]

ENGINEERING CHANGE PROPOSAL FOR THE B-1B

The B-1B program has been tightly managed from the outset. Deputy Secretary of Defense Carlucci established the baseline for the B-1 program on 4 November 1981 in a memorandum to the Secretary of the Air Force. With respect to configuration control, the Deputy Secretary stated: "No change to the presently planned B-1 acquisition program or major changes in configuration will be made without my approval."

In the B-1B Program Director's Update Briefings to the Secretary of Defense (SECDEF), Engineering Change Proposals (ECPs) which are believed to be of interest to the SECDEF are discussed. SECDEF approval is required for major changes, such as when the Common Strategic Rotary Launcher was incorporated in 1983.

The SECDEF does not review ECP changes needed to correct design deficiencies uncovered during full scale development and manufacturing.

ECP THRESHOLD

Senator RUDMAN. I think you will find that there is, and I think it was suggested by the Secretary himself. I think this only tends to lead, at least to the suspicion of a conclusion that one of the things we ought to look at here is having a threshold on these. This is not to build the bureaucracy and not to take it away from system and program managers. But the Secretary of the Navy has decided that he would like to look at all of these.

Now, maybe you don't have to look at all of them. I would like an answer for the record from both the Army and the Air Force as to whether or not you have any review.

This is an area where it seems to us a lot of money is spent and sometimes not necessarily wisely.

[The information follows:]

SECRETARY OF DEFENSE APPROVAL OF ECPs

AIR FORCE RESPONSE

Program managers are constrained by the amount of funds they have available for making needed changes. ECPs exceeding specified cost limits require approval at higher levels. Also, program cost, performance, and schedule thresholds are usually established for large programs and any ECP that would breach a threshold would require approval by HQ USAF. Review of ECPs at the Secretarial Level would be on an exception basis.

ARMY RESPONSE

As was stated earlier, the Army has no service-wide requirement for elevation of ECPs for review. To repeat again, we do have a policy requiring elevation of the

approval level for all cost increasing ECPs applied to multi-year fixed price hardware contracts. As was stated, this approval level is elevated to the Major General or Lieutenant General level, depending on the decision review level of the system involved.

For other than multi-year fixed price hardware contracts, the degree of elevation, the conditions for elevation and the dollar threshold varies by Buying Command. As was stated earlier, there is no Army-wide policy on this.

Senator RUDMAN. Would you like to comment, Admiral?

Admiral GIORDANO. Your description of the interest of the Secretary of the Navy in the ECP program is correct. I am not sure that he is looking at all of the ECPs. There clearly are thresholds. But there has been a very, very aggressive management effort at that level to curb them, and the savings are there, as you have reported.

Senator RUDMAN. Thank you.

GRACE COMMISSION REPORT

Let me turn next to something from the Grace Commission report, if I might. I am sure that you at least have looked at a summary of it, if not at the entire report.

It recommended reducing the standard progress payment rate from the current 90- to 100-percent range down to the 1980 level of 80 percent, with a saving of \$8-\$10 billion. What are the specific benefits to the Government of the present acceleration payment rates?

I understand the benefits to the contractors. But what are the benefits to the Government?

Ms. GILLEECE. First of all, Mr. Chairman, let me just mention that the progress-payment rate used to be at 80 percent. We increased it to 85 percent when the interest rates increased to the 10-12 percent level, which, of course, is where they are today.

The second increase, up to 90 percent and 95 percent respectively for large business and small business was put into effect when we ceased paying contractors every 2 weeks and in fact only paid them once a month.

To answer your specific question, in fact it is much cheaper for the Government to finance the contractors than for the contractors to borrow money on their own.

MULTIYEAR LIMITATIONS

Senator RUDMAN. On the question of multiyear limitations, Dr. DeLauer's report states, and I quote: "Efforts are underway to repeal the fiscal year 1984 appropriations act limitation on multi-year." What specific limitations do you seek to repeal?

[Pause.]

Ms. GILLEECE. Mr. Chairman, I do not have the specific changes appropriations act.

Senator RUDMAN. Would you supply that for the record, please?

Ms. GILLEECE. Yes, sir; if that is all right.

Senator RUDMAN. We would like specifically to know what part of that you wish to change.

[The information follows:]

REPEAL OF MULTIYEAR LIMITATIONS

We are enthused about the success of our multiyear programs and believe there are many additional opportunities to use this contracting technique. At the same time we are concerned that the mood of Congress regarding support for multiyear has been changing since passage of the FY 1982 Defense Authorization Act. A key indicator of the changing mood is the restrictions included in Section 765 of the FY 1983 Defense Appropriations Act and in Section 760 of the FY84 Defense Appropriations Act. Section 760 does the following:

Prohibits use of any FY 1984 funds on a multiyear contract for a major weapon system unless the multiyear contract is specifically approved in the act; and

Requires notification of the four oversight committees before award of a multiyear contract that employs Economic Order Quantity (EOQ) advance procurement in excess of \$20M in any one year or contains an unfunded contingent liability in excess of \$20M.

While we can understand the desire of Congress to be involved, the stipulation that no funds in the appropriation act be used for major weapon system multiyear procurement not specifically approved in the act is overly restrictive. Perhaps a procedure such as that used for reprogramming actions would better serve both of our interests.

The degree of congressional oversight imposed by Section 760 on the use of multiyear for less than major systems is also unnecessarily restrictive. We believe Section 760 is contrary to the intent of the original legislation to expand multiyear authority. Economic order quantity procurements and unfunded contingent liabilities are essential tools the program manager needs to negotiate effective multiyear contracts. Economic order quantity advance procurement of parts, material, components, and the necessary labor to produce them is a major source of savings in multiyear. The restrictions imposed by Section 760 are discouraging program managers from using these multiyear techniques. In essence, the restrictions, coupled with the disappointing multiyear approval rate by Congress, are dampening enthusiasm for multiyear.

ECONOMIC PRODUCTION RATES

Senator RUDMAN. Let me turn now to economic production rates. The Department claims to have saved about \$2.6 billion by establishing economic production rates in fiscal years 1983 and 1984 for 18 programs. Would you tell us just some of those 18 programs and their respective savings and for the record supply the list of all 18 and their respective savings?

Ms. GILLECE. Mr. Chairman, I have before me the economic production rates by program savings in millions for this administration, not just by year. Some of them are indicated—the F-16, laser, Hellfire, AIM-9M production, Phoenix production rate. I can certainly supply this to you.

Senator RUDMAN. Why don't you provide for the record a list of the 51 major programs you reviewed and indicate which ones will achieve economic production rates by 1989.

Ms. GILLECE. Yes, sir.

[The information follows:]

MAJOR SYSTEM ECONOMIC PRODUCTION RATE ACHIEVEMENT

[In fiscal years]

Army:	Year EPR achieved
AH-64	1985
Laser Hellfire Missiles	1985
MLRS Launchers	1986
M-1	1985
Bradley Fighting Vehicle	1985
M-9 ACE	1986
Patriot Missiles	1985
Pershing II Missiles	1985
Sergeant York	1985

Stinger/Post Missiles.....	1985
TOW II Missiles.....	1985
UH-60 Blackhawk.....	1985
Navy:	
AIM-54 A/C Phoenix.....	1985
AV-8B Harrier.....	1985
BGM-109 Tomahawk.....	1989
CH-53E Super Stallion.....	1986
E-2C Hawkeye.....	1985
EA-6B Prowler.....	1985
F/A-18 Hornet.....	1985
F-14A Tomcat.....	1985
T-45 A/G Hawk.....	1986
MK-15 CIWS.....	1985
SH-60B (incl. SH-60 CV).....	1985
SM-1MR.....	1985
SM-2MR/ER.....	1985
Torpedo MK-46.....	1985
Air Force:	
AGM 65D Maverick.....	1987
AMRAAM.....	1988
B-1B.....	1986
C-5B.....	1985
F-15.....	1988
F-16.....	1985
GBU-15.....	1985
HH-60D/E.....	1989
KC-10A.....	1986
MX Peacekeeper.....	1986
T46A NGT.....	1988

MAJOR SYSTEMS NOT ACHIEVING EPR DURING FISCAL YEARS 1985-89

Army:	
Copperhead	
M-109 155mm HOW SP	
M-198 155mm HOW TOWED	
M-88 Recovery Vehicle	
EH-60A Quickfix	
Navy:	
ADCAP	
AGM-84A HARPOON	
AGM-88A HARM	
AIM-RIM-7 F/M SPARROW	
AIM-9 L/M SIDEWINDER	
ECX/E-6A	
Laser Maverick	
P-3C Orion	
Air Force:	
Laser Bomb Guidance	

COMPONENT STOCKPILING

Senator RUDMAN. Dr. DeLauer's report states that the Department is identifying critical components to be stockpiled. Can you tell us the immediate benefit of this and how much you have requested this year for that purpose?

Ms. GILLECE. The Armed Services Committee on the House side, as you know, a couple of years ago issued a report which indicated that the defense industrial base is in critical condition—I believe they even used the word "crisis" condition. In point of fact, there were some recommendations within that report which indicated that we should improve our defense industrial base. There are various methods of doing so.

One of those methods is stockpiling equipment.

The current law requires us to stockpile up to a 3-year amount. We have, in fact, requested every year funding in stockpiling. If my memory serves me correctly, I think we are at about \$120 million, but I would make sure that I gave that information more specifically as I don't have it here.

Essentially, what we must do is to make sure that we are able to meet the threats that are there.

[The information follows:]

STOCKPILING

In further clarification to Senator Rudman's question, the stockpiling of essential components (long leadtime) in a "rolling inventory" will provide production surge capability in a crisis. The near-term benefit would be the capability for rapid increase in production of critical war-fighting items when required at nominal cost. The DoD budget includes \$25 million in FY 1985 and \$28 million in FY 1986 to achieve surge capability of the TOW 2 missile.

AMMUNITION PRODUCTION BASE MANAGEMENT

Senator RUDMAN. I have just a few final questions.

Let me turn to ammunition production base management.

With a heavy emphasis on smart munitions, which are generally manufactured by the developing contractor, there seems to be less demand for Government ammunition depots. What is your opinion of a policy requiring a second-source capacity for munitions at Government facilities?

General STALLINGS. A second-source capacity?

Senator RUDMAN. Correct. Historically, when you talk about historical ammunition, let's say for the Army, various inch and other types of mortar rounds, many were produced at depots.

General STALLINGS. In the GOCO's, yes, sir.

Senator RUDMAN. But we are moving more and more toward smart munitions and in my discussions with the Army in particular our typical ammunition supply rates are going to be less because we assume that the accuracy is going to be greater. Obviously where you might have 30 155-mm. shells you might have two pieces of smart munitions in the division's ammunition base.

Well, if that whole base is going down, what about looking at second sourcing some of the things the Government produces in terms of the future, in terms of great cost saving?

General STALLINGS. We certainly can look at that, sir. There ought to be a very fine tuning of what we do in the civilian industry side versus what we do in the GOCO, Government-owned-contractor-operated, plants, the ammunition plants that the Army has.

Both, I believe, are underworked at the present time. Neither are operating up to their total capacity. So we would want to be very careful about what we put into civilian industry and what we continue to keep in our GOCO plants.

We work that very hard to make sure that we do the best we can to workload them both.

Currently, we normally produce the explosive in our GOCO plants. We normally buy our metal parts to include any fusing devices or anything like that from civilian industry. Then we take them to a Government-owned-contractor-operated plant, where it is put together into a final round.

So, currently, on our smart munitions, the majority of the metal parts would be made in civilian industry at one of their plants. Then, we would produce the explosive. We might produce the casing, or they might produce the casing. Then it will be lapped or put together into one.

INDUSTRIAL BASE FOR SMART MUNITIONS

Senator RUDMAN. Are we also moving toward greater broadening of the industrial base for some of the smart munitions? For instance, some of them do not have second sourcing at this time and some do.

General STALLINGS. Yes, sir.

Senator RUDMAN. I believe Copperhead, TOW and HARM do not?

General STALLINGS. That is not an Army one.

Sir, I think setting up a second source would have to be balanced based on the work load that is available. We certainly would not want to take one of our GOCO plants and harm the workload that they have to go out for a second source in the industry. I think we would have to do that on a balanced basis, looking at it, at what makes sense to keep both industry and our GOCO plants operating. I'm not saying that it is not a good idea. I'm merely saying that we'd want to approach that with a very balanced view.

Senator RUDMAN. We have a number of other questions for the record and you have some answers also to supply to us for the record, which you have assured us you will get.

The record will be kept open for the normal time so that you will have adequate time to get your responses in.

Let me, before closing this hearing, simply state this. I think we have a very serious problem confronting us with the question of warranties. I think you have sensed that, I am sure, Madam Secretary.

It seems to me that there ought to be a message delivered pretty soon that we really want to work cooperatively with people at DOD.

I already have told the staff as well as said at this hearing that we are going to prepare a very thorough analysis. We will furnish you with a copy of our analysis prepared by competent contract-knowledgeable lawyers and people who understand regulations.

It seems to me that if we are going to have the goal that we are all working toward, which is to have a workable warranty program which does not in any way add to costs and unfairly burden contractors, we are going to have to work more cooperatively. I get the feeling, Madam Secretary, that there are those who, in the words of Senator Andrews, have attempted to subvert the process.

Now I am not suggesting that you are one of those people. I am simply suggesting that someplace, somewhere, there is an effort to subvert the process.

I would be willing to bet, Madam Secretary, that this process is not going to be subverted. There is very strong support for reasonable warranty provisions, here. I would emphasize the word "reasonable."

So, I would hope that you would carry that message back with you. We will furnish you with a copy of the analysis that we prepared to see whether or not it squares with what your in-house people feel over at DOD.

SUBMITTED QUESTIONS

The committee questions which will be inserted in the record at this point.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

Contracts Priced after Material Received

Question: The so-called Hancock report last year found some contracts were priced long after the procured material was received. Is this a common occurrence.

Answer: No. Our price redetermination type contracts usually provide for a firm fixed price for an initial period of contract deliveries or performance and for prospective price redetermination either upward or downward at a stated time or times during the performance of the contract.

OVERSTATEMENT OF WAR RESERVE READINESS

QUESTION: GAO reported that the Air Force overstated the war reserve readiness spares requirements because component failure rates are often overstated. What are your views?

ANSWER: The thrust of the 1983 GAO report was with the time of the Air Force's wartime computation cycle rather than with the accuracy of the failure rates used. The GAO reported that the Air Force should recompute War Readiness Spares Kits and Base Level Self-Sufficiency Kits (WRSK/BLSS) requirements each time a component's failure rate changed rather than yearly. The Air Force instituted an out of cycle WRSK/BLSS change process last year to allow personnel to make changes to WRSK/BLSS requirements where significant failure rate changes occur between annual WRSK/BLSS reviews. This change coupled with the implementation of a senior level management review of additions and increases to WRSK/BLSS ensured that the FY85 budget did not contain overstated war reserve spares requirements.

AIRCRAFT MODIFICATION

QUESTION: The Air Force has emphasized aircraft modification program to improve reliability. The objective is to increase mission capable rates and cut down on spares consumption. If reliability has improved as much as the Air Force thinks it has, why are we seeing such huge increases in the spares budget request?

ANSWER: Additional spares are needed to support increased aircraft procurements, an aging aircraft force which averages 15.5 years, and additional readiness achieved through an increasing flying hour program. The modification program is effective and modifications which improve reliability result in reductions to spares requirements and funding; however, reliability modifications account for about 24 percent of all modifications. Improved capability modifications make up 69 percent of the modification program. There are just not enough reliability modifications to keep up with the aging force.

Additional Personnel

Question: We note that, in addition to the 700 personnel funded by Congress last year, you are budgeting for 5,000 additional spaces for spare parts management. How will these people be allocated?

Is it really necessary to establish new positions for this requirement? Why can't the Department and the Services absorb a good portion of this personnel load?

Answer: In addition to the 700 personnel funded in 1984, we have budgeted for 2803 personnel in 1984 and 3917 additional personnel in 1985. These people are allocated as follows:

Service	FY 84	FY 85
Army	1063	1286
Navy	550	735
Marine Corps	54	54
Air Force	1000	4509
Defense Logistics Agency	836	836

The functional assignment of the personnel is subject to need. At the present time, it is anticipated roughly 25% of the people will be assigned to contracting functions, another 25% to pricing functions, and the remaining 50% to breakout functions. These additional people are needed because there are no shortcuts to a hands-on individual analysis of each buy of each spare part at this time. Eventually, automated systems we are now planning will permit a reduction of manual reviews. In the meantime, the breakout of items for competition and the determining of reasonable price on even low dollar buys requires huge quantities of manpower who are trained and qualified in certain specialties. There are not sufficient quantities of such people in the DoD to perform these functions and still maintain the other essential functions of acquisition. The need for these people is consistent with actions taken in prior years to conserve funds by reducing the people who formerly performed these functions.

NEW LAYER OF BUREAUCRACY

QUESTION: A staff visit to the Air Force logistics center at Hill AFB two months ago inquired into the competitive advocacy program there. We learned that at this center alone more than 100 personnel are working for the competition advocate, and a complex paperwork system has been established.

We realize the need to increase competition, but is it necessary to establish a new layer of bureaucracy to do so?

ANSWER: Due to the large number of individual spare parts acquisitions processed by each of the five Air Logistics Centers (ALC), and the labor-intensive effort required to address and resolve competition and pricing issues on each buy, extensive resources are required.

Because of the functional orientation of the ALC organization, AFLC has found it necessary at this time to assign these jobs to a single responsible office reporting to the ALC commander, to ensure that proper resources and priority are placed on increasing competition and restoring unit price integrity.

The Air Force Logistics Command Competition Advocate organizations are being manned to execute the Spare Parts Breakout Program (Defense Acquisition Regulation Supplement 6); to accom-

lish market research functions; to locate new potential sources of supply for spare parts and assist them in becoming qualified; to perform a "value analysis" function by reviewing spare parts and prices paid for spare parts, and assisting the contracting officer in avoiding overpricing; and several other functions related to the enhancement of competition. It should be noted that more than 1/3 of the currently authorized positions are not new positions but are a transfer of function from another organization.

QUESTION: What about the 400 additional auditors Congress mandated in connection with spare parts overpricing problems? How are they being utilized?

ANSWER: We can find no language in the written background of DoD's FY 1984 appropriation which indicates that the funding of 400 additional auditors for DCAA was precipitated by or directed toward the "spare parts overpricing problem." The record indicates that congressional action was aimed at an overall strengthening of the contract audit function, and was influenced by a recognized shortfall in resources in an agency with an impressive return on investment.

DCAA has established a hiring plan which anticipates that the Agency will be at full strength, 4,147 personnel, by September 30, 1984. The majority of the hiring will take place between July and September. The positive impact of these resources; however, will not be realized immediately because of general indoctrination and training requirements. The Agency plans to utilize the additional staffing in a number of important areas; however, the principal benefit will be an increase in the dollars of contractor incurred costs audited, as well as increased efforts on audits of economy and efficiency of contractor operations, audits of contractor EDP systems, internal control reviews and intensive labor audits. The extent to which this occurs will be largely dependent upon increases in the volume of pricing proposal reviews, including spare parts proposals, and any attendant increases in the number of defective pricing reviews required.

QUESTION: Are more auditors needed or are we overreacting?

ANSWER: As stated above, DCAA's goal for FY 85 is to fully assimilate the additional 400 auditors plus those replaced through normal attrition (300 per year). Altogether, this will mean that over a 2-year period, DCAA will have had to absorb close to 1,000 new auditors equating to roughly 33% of its audit strength. Staffing needs above and beyond the 4,147 would be predicated largely on continued real growth in the DoD procurement budget as well as other external factors. At this point, it is difficult to predict DCAA's outyear staffing requirements. However, the Agency is monitoring its needs closely.

Additional Procurement Personnel

Question: DOD is seeking an additional 5,000 people for procurement activities. Will this fill all of your needs or will you be back for more next year?

Answer: We do not anticipate a need for a significant increase in people for spares procurement next year. Approximately 200 more people are planned for FY 1986.

Modernization of Automated Systems

Question: We also asked in our report "to be advised, within 6 months, of the Department's and Services' plans to accelerate the modernization of its spare parts requirements, procurement, and technical documentation systems...to include critical milestones and funding resources necessary to expedite these program." Do you have anything to report yet?

Answer: The Military Services and the Defense Logistics Agency (DLA) have been tasked to report on plans to accelerate the modernization of their wholesale logistics management systems with particular emphasis on spare parts requirements, procurement and technical documentation. They were also asked to identify constraints to further acceleration and propose actions for removing such constraints. In addition, an independent review of systems modernization programs at the inventory control points of the Military Services and DLA is near finalization. We will advise the Committee of our plans to accelerate systems modernization in our full report. However, it is already evident that the acceleration process will involve reallocations and additional commitments of resources as well as acceleration of planned commitments. Logistics systems modernization actions are essential to improve spare parts management and are critical to sustaining overall logistics performance, productivity and readiness. The Committee's continuing interest and support for these vital initiatives is appreciated.

Requested Legislation Change

Question: You state the Department is seeking legislative authority "to establish a negotiation exception for developing a second source" of production. How will procurement be done differently with this new authority?

Answer: DoD Legislative Initiative 98-95 seeks to amend the Armed Services Procurement Act of 1947 codified in chapter 137 of title 10, U.S.C.

The purpose of the proposed legislation is to add a new subparagraph under 10 U.S.C. 2304(a) that will clearly allow negotiation to establish or maintain alternative sources of supply for purposes of competition. The proposed legislation authorizes the negotiation and award of a contract with another source for the purpose of establishing and maintaining a competitive environment.

Negotiation exception (16) does not appear to authorize negotiation of contracts for the purpose of establishing or maintaining additional sources solely to achieve the benefits of competition. The proposed legislation would authorize the negotiation of contracts for the purpose of introducing competition when noncompetitive circumstances exist and when the projected cost savings from such competition are significant. Such circumstances involve acquisition strategies including (i) leader-follower arrangements, (ii) contractor teaming arrangements, (iii) licensing agreements, or (iv) use of validated data packages. Therefore, when careful analysis clearly indicates that cost savings will likely result from the introduction of competition, there should be clear authority to negotiate a contract in order to attain such future benefits.

Industrial Base Modernization Policy

Question: Since more than 50 percent of the Department's procurement funds are spent at the sub-contractor level, have you established a policy to encourage modernization of the production base at this level?

Answer: The Department of Defense strives to encourage modernization at all levels of the industrial base. Because of contracting relationships, however, mechanisms and vehicles for doing this on the subcontractor level are at times more difficult than in situations where the DoD is directly acquiring products. Nevertheless, the DoD has a number of activities underway which may be expected to have a positive impact of sub-contractor modernization. Particular emphasis is being placed on development of sub-contractor and vendor provisions as part of the Industrial Modernization Incentives Program (IMIP) as is discussed in the following question. Development of advanced manufacturing techniques and processes under DoD-sponsored programs such as the Manufacturing Technology Program is open to subcontractor participation and results are transferrable to sub-contractors. We are also encouraging our prime contractors to work closely with their sub-contractors to improve productivity and modernize. As one example of our efforts, we recently sponsored initial, exploratory meetings between the National Productivity Network (an affiliation of non-profit, university-associated regional productivity centers) and representatives of DoD contractors in order to define how the Network may be of benefit to sub-contractors. Other overall DoD initiatives such as multi-year procurement and encouraging competition are important in terms of providing program stability at the sub-contractor level and in fostering competitive pressures which encourage modernization. Additionally, key components of our efforts to improve our purchasing practices for spare parts (acquiring technical data suitable for competitive breakout, value engineering, and parts control) and a major DoD initiative to promote more cost-effective definition of contract requirements should work to encourage maximum participation by subcontractors in the acquisition process.

Question: Does your Industrial Modernization Incentives Program cover all levels of the industrial base?

Answer: The Industrial Modernization Incentives Program (IMIP) is directed at overcoming identified impediments in the acquisition process that inhibit modernization and progress in the productivity area. It is based on an early intensive systems engineering analysis of the manufacturing facility and the benefits to be derived from modernization. The IMIP is currently in the test phase and one of the key issues identified as part of the test is flowdown of provisions to subcontractors and vendors. The Air Force has an aggressive program on the F-16 aimed at the subcontractor level--General Dynamics is currently working with over 60 of its major suppliers. Techniques developed as part of this effort are expected to be of major benefit in future programs. The Navy recently signed a framework business agreement with Grumman Aerospace under the IMIP. One of the significant provisions is that the contractor maintain continuing efforts to encourage subcontractor, supplier, and vendor participation as part of the program. The DoD Components are also exploring innovative, new techniques such as the sharing factor approach (whereby shared

savings rewards are allocated proportionately over all contracts at a manufacturing facility) which have particular relevance in the subcontractor environment. Direct contracting is another option being considered. In addition, the DoD Components are examining ways to conduct industry-wide programs for specific technologies such as traveling wave tubes.

Most subcontractor efforts are at an early stage and much remains to be done. Nor is it foreseen that IMIP will be the exclusive answer to subcontractor modernization. Program prizes may not always match (positive price competition may exist, quantities may be small, and DoD market share may be low). However, the DoD Components are pursuing subcontractor and vendor involvement as a high priority aspect of IMIP, and IMIP may be expected to make a significant contribution to subcontractor modernization over the long term.

Question: Defense contractors should be largely responsible for modernizing their own production base. Under what conditions do you feel the Government should consider financial or tax incentives?

Answer: Capital investment and modernization is first and foremost a contractor responsibility. However, the DoD recognizes that it has certain responsibilities to spur improved productivity and reduced acquisition costs. In Defense, two problems have been cited most frequently as inhibiting modernization. These are program uncertainties and a profit policy which, in certain acquisition circumstances, is based on cost. In the first instance, risks are introduced which hinder investment amortization and inhibit long-term planning. In the second case, when the Department of Defense negotiates costs and profits, profit is typically permitted based on the cost. Over the long-term stream of contracts, cost reductions achieved by a contractor and corresponding profit levels are negotiated away by the Government. Therefore, a contractor may actually see profits reduced as a result of risks he takes to improve productivity and reduce costs.

It is in this context that incentive provisions under the IMIP are being tested. Incentives may be provided when more than the "usual" investment is involved and when the risks, benefits, and other factors show the incentives can be justified. The IMIP is a very targeted and controlled way of fostering capital investment and modernization. It results in an intensive analysis of the contractor facility and demonstration of benefits to all parties. The DoD must see the prospect of reduced acquisition costs as a result of any agreement negotiated under the IMIP.

The DoD views general tax incentives for capital investment and modernization as important aspects of national efforts to encourage a competitive and productive U.S. industrial structure. Tax incentives which have this direct effect are felt to be most effective, and should be considered when the general level of capital investment in the U.S. is below desired levels. For instance, the Department believes that the Economic Recovery Tax Act (ERTA) of 1981, as modified in 1982, was a positive step to stimulate U.S. industry in general to increase capital expenditures in modern plant and equipment. The effects of ERTA and other tax incentives, along with DoD cost and profit policies, are important factors in IMIP negotiations.

Question: When the government participates, who should be responsible for the high risk projects?

Answer: The IMIP is primarily aimed at motivating contractors to invest their own funds. High risk projects (with an assumed corresponding high benefit potential) could be expected to result in a higher potential shared savings reward to a contractor. There are provisions under IMIP which allow limited government funding for applications engineering and technology development when the situation warrants. Manufacturing Technology Program projects (with significant government funding) may also be done in conjunction with an overall IMIP. Actual responsibilities for a specific project under a specific IMIP would be a matter of negotiation in each particular instance.

Question: To what extent are defense contractors modernizing now that defense earnings and production backlogs are up and growing?

Answer: The Department of Defense buys such a wide variety of products from so many sources under different acquisition circumstances that sweeping generalizations about productivity and capital investment levels cannot be made. There are bright spots as well as areas where major improvements are needed. Productivity problems and solutions in the various segments of industry vary. However, a significant portion of manufacturing under defense programs is done using outdated and inefficient capital equipment in a labor-intensive fashion. DoD contractors have been and are continuing modernization efforts, but these efforts need to be accelerated in order to reduce DoD acquisition costs.

Extent of defense contractor modernization activity and plans are addressed specifically whenever an IMIP is considered. Prior contractor capital investment profiles and future contractor capital investment plans provide an important baseline for IMIP negotiations. It is the DoD's intent to negotiate incentive provisions under IMIP only for capital investments beyond those required to meet normal contractual obligations.

Repeal of Multiyear Limitations

Question: Dr. DeLauer's report states "efforts are underway to repeal the FY 1984 Appropriations Act limitation on multiyear." What specific limitations do you seek to repeal:

Answer: This answer is provided in detail in insert line 21, page 77.

Multiyear Procurement

Question: What specific examples do you have where the FY 1984 appropriation language discourages the use of multiyear procurement?

Answer: The Army's TOW II program is a case in point where Congress neither approved nor disapproved the program in either the FY84 Authorization Act or the FY84 Appropriation Act. As a result, the Army is having to seek legislation approving the TOW II Multiyear Program in an FY84 supplement. If our legislative request for approval of the TOW II in the supplement is not successful, we will have to wait for the FY85 Budget to see if approval is granted. This delay

of one year could result in reduced savings in excess of \$100M because it wasn't initiated in FY84.

Further, I think Congress discourages the use of multiyear programs when only half of our FY84 multiyear candidates were approved. This kind of approval rate sends a clear signal to the Program Managers and contractors that we are not real serious about multiyear contracting.

Stockpiling

Question: What would be the immediate impact on modernizing and readiness if funding for component stockpiling were deferred until next year?

Answer: Deferral of component funding for another year would essentially terminate the DoD Production Surge Program which was developed to remedy three of the specific findings by the Defense Industrial Base Panel, HASC. These findings, indicating an adverse affect on readiness of our fources, reflected an unbalanced industrial base incapable of surging production rates in a crisis and requiring long lead times to deliver military equipment.

Budget Items

Question: For the record, identify by budget line the funding requested.

Answer: Line 8, TOW 2 (MYP) Advance Procurement, Missile Procurement, Army, Exhibit F-1.

Guaranty Policy Guidance

Question: As a matter of policy, you are excluding the use of warranties from cost type production contracts, to include those for the production vice development of a weapon system. You further note that performance warranties will only apply to "performance requirements" and not to "performance characteristics that are described as goals or objectives." Are requirements currently categorized that way today?

Answer: Goals and objectives are performance characteristics that are sometimes associated with the research and development phase of a program. A distinction was made in the guidance to specifically ensure that field activities focused their attention on the performance requirements of a program when implementing the guaranty policy.

WARRANTIES

QUESTION. To clarify the difference between these categories, for each of the following systems, list the performance requirements, goals and objectives; JvX Trident II, Dual Role Fighter (DRF), Army Remotely Piloted Vehicle (RPV).

ANSWER. Performance requirements for the Remotely Piloted Vehicle are listed below.

Mission range of air vehicle	45KM
from remote ground terminal	
Reliability	
System for 3 hour flight	0.91
System for 3 hour mission	0.82
Maintainability	
Organizational (90% of failure)	0.50 hr.
Direct Support (10% of failure)	2.00 hr.
Availability	0.89

SYSTEMS CATEGORIES

QUESTION: To clarify the difference between these categories, for each of the following systems, list the performance requirements, goals and objectives: JVX, Trident II, Dual Role Fighter (DRF), Army Remotely Piloted Vehicle (RPV).

ANSWER: JVX - The JVX will be an advanced technology fixed wing aircraft with vertical takeoff and landing (VTOL) capabilities. It will be employed in Air Force special operations missions. Specific Air Force JVX performance requirements are:

- (a) Minimum cruise speed of 250 KTAS
- (b) Dash speed of 275 to 300 KTAS at altitudes below 500 feet
- (c) Self deployment range of 2100 NM
- (d) Radius of action of 700 NM with 12 combat equipped troops
- (e) Night/adverse weather capability.

DRF - The performance requirements for the DRF are a function of the mission to be accomplished. The DRF will provide long range, night, adverse weather, deep interdiction/attack and all weather theater air defense. The candidate's (F-15/F-16) capabilities in the above areas were compared relative to the following factors:

- (a) Air-to-surface role: takeoff and, landing distance, payload, penetration depth/target base coverage, radar target recognition/bombing accuracy, vulnerability/survivability, and mission rerole time.
- (b) Air-to-air role: combat range/air patrol station time, max speed, turning performance, radar detection capability, weapon compatibility (AMRAAM, SPARROW, SIDEWINDER, GUN), and mission rerole time.

GUARANTY POLICY GUIDANCE DATED MARCH 14, 1984

Question: To clarify the difference between these categories, for each of the following systems, list the performance requirements, goals and objectives: JVX, Trident II, Dual Role Fighter (DRF), Army Remotely Piloted Vehicle (RPV).

Answer: The TRIDENT II missile (less guidance) development and initial production contract has extensive multiple incentive provisions that require the contractor to balance the various performance characteristics against both total cost and repetitive production costs. The principal performance incentive parameters are: flight reliability, missile subsystem accuracy and range. Other incentive elements include quality, schedule, flight termination system performance, total cost and repetitive production costs. Performance characteristics which are called out by specification and are treated contractually as goal and/or objectives include, but are not limited to the following types of performance parameters: operational readiness, crossflow capability and nuclear hardness.

Performance characteristics contractually required include, but are not limited to items such as: submarine environments, including pressure, temperature, humidity, shock and vibration, launch loads, nose fairing loads, cavitation loads, strength of specified missile structures, missile weight and dimensions.

The JVX program is still in the development stages. Therefore performance requirements, goals and objectives are still being developed.

Question: Describe the conditions which justify the use of cost type production contracts.

Answer: The Department limits the use of cost reimbursement type contracts for the procurement of weapon systems to purchases where the uncertainties involved in contract performance are of such magnitude that cost of performance can not be estimated with sufficient reasonableness to permit use of any type of fixed price type contract. This sometimes occurs at the beginning of a production program when we are in the low rate initial production phase.

Question: Will the performance requirements always be established and approved before a program enters production?

Answer: Performance requirements are a product of the research and development effort and are well defined when we go into rate production.

Section 797, 1984 DoD Appropriations Bill

Question: Describe how the Department of Defense and each of the Services are going to implement Section 797 of the 1984 DoD Appropriations Bill?

Answer: The Department will review the attributes of second sourcing of major acquisition programs during the Milestone II review as part of the Defense System Acquisition Review Council (DSARC) process. Correspondingly, for eligible programs not reviewed by the DSARC, the individual Service review councils will address this area as appropriate.

Question: What is the difference between a Category 1, Category 2, Category 3 and Category 4 system? How are weapon systems assigned to one of these categories?

Answer: The Department does not use a four category system as described in the question. Our major systems are defined in DoD Directive 5000.1, Major Systems Acquisition. They normally include programs estimated to exceed \$200M in RDT&E funds or \$1B in procurement (production) funds or both. A major system may include joint programs or designated programs of specific interest to the Secretary of Defense or the Congress.

Question: How will Section 797 be applied to each of these categories?

Answer: As previously mentioned, Section 797 will be considered during the DSARC process or the individual Service Acquisition Review Council process.

Competition

Question: What steps is the Department taking to insure that provisions to permit and/or encourage competitive procurement are designed into each weapon system's acquisition plan at the earliest moment?

Answer: Several policy documents have been issued to encourage competition in procurements by the Department. The following are provided for the record:

1. Acquisition Improvement Initiative #32 on competition.
2. Defense Acquisition Circular (DAC) 76-43 of 22 March 1983, page 16, paragraph 18., Competition and page 11, paragraph 6., Acquisition Strategy.
3. SecDef memo of 9 September 1982.
4. Three DepSecDef memos of 12 March 1984.



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

JUL 27 1981

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
 CHAIRMAN OF THE JOINT CHIEFS OF STAFF
 UNDER SECRETARIES OF DEFENSE
 ASSISTANT SECRETARIES OF DEFENSE
 GENERAL COUNSEL
 ASSISTANTS TO THE SECRETARY OF DEFENSE
 DIRECTORS OF THE DEFENSE AGENCIES

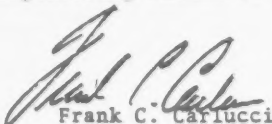
SUBJECT: Increasing Competition in the Acquisition Process

The value of competition in the acquisition process is one of our most widely accepted concepts. We believe that it reduces the costs of needed supplies and services, improves contractor performance, helps to combat rising costs, increases the industrial base, and ensures fairness of opportunity for award of government contracts. Despite our beliefs and efforts at furthering competition, there is a serious concern that our achievements are not adequate. Many in government and industry believe that we award too many contracts without adequate competition.

I am therefore asking that managers at all levels renew their efforts to obtain maximum competition for their contractual requirements. I have directed that my memorandum dated April 30, 1981, on "Improving the Acquisition Process" be amended to add a recommendation on competition. A copy of that recommendation is attached. It will receive the same intensive implementation and follow-up attention as the earlier recommendations.

Achievement of competition in acquisition crosses many functional areas: procurement, program management, engineering, financial management, legal, supply, maintenance, and others. For this reason, individuals who have responsibility for coordinating these disciplines must become personally involved to ensure that appropriate plans and procedures are followed.

I request that each Military Department and Defense Agency having procurement authority establish management objectives for the enhancement of competition. Please send your plans for this program to the Under Secretary of Defense for Research and Engineering within 60 days of the date of this letter.


 Frank C. Carlucci

Attachment

Recommendation 32

INCREASE COMPETITION IN THE ACQUISITION PROCESS

Competition is a basic cornerstone of the free enterprise system. When applied to procurement, it assures fairness, avoids favoritism, obtains lower prices, and achieves better performance. Failure to obtain competition for Government contracts results not only in a loss of these benefits but in a loss of confidence in the integrity and quality of the acquisition process. Such losses have a very serious effect on the ability of the DoD to accomplish its basic mission.

Competition can be obtained only by meticulous planning and by the support of management at all levels. It involves all functional disciplines associated with the acquisition process — not just the procurement or contracting function. Special techniques for enhancing competition have been developed for different commodities and services. Some require additional early funding to achieve significant savings in later phases. Technical or design competition may supercede price considerations during advanced or engineering development phases for new equipment. Competition should be extended to the extent possible beyond initial acquisition and should include life cycle costs.

Recommendation - Require the Services and Defense Agencies to establish management programs to increase competition by setting objectives.

Advantages - Will decrease contract costs, improve performance, avoid the appearance of favoritism, and increase confidence in Defense procurement.

Disadvantages - Increases management costs and lengthens preaward lead time.

Action Required - Direct that acquisition management activities establish appropriate program objectives to enhance competition.

Approved: _____
 Idea Needs More Development: _____
 I Need More Information: _____
 Disapproved: _____



DEFENSE ACQUISITION CIRCULAR

22 MARCH 1983

NUMBER 76-43

This Defense Acquisition Circular is issued by direction of the Secretary of Defense pursuant to the authority contained in 5 U.S. Code 301, 10 U.S. Code 2202, DoD Directive 5000.35, and DAR (ASPR) 1-106.

Unless otherwise specified, all DAR and other directive material contained in this Defense Acquisition Circular is effective upon receipt in accordance with DAR 1-106.2(d).

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SPECIAL NOTE: All replacement pages furnished with Defense Acquisition Circulars (whether or not identified by specific items) are replacement pages for the 1976 edition of DAR (ASPR).

17. Cost Analysis. DoD Components will conduct an independent cost analysis of program manager's cost estimates at major program milestones and for specified program reviews. These analyses will be conducted and the results presented to the Cost Analysis Improvement Group (CAIG) in accordance with the provisions of DoD Directive 5000.4.

18. Competition. Competition should be introduced in the concept exploration phase and maintained throughout the acquisition cycle as long as economically beneficial. The potential for competition should be carefully protected throughout the acquisition cycle, including the production phase. When the acquisition strategy contemplates competition in the production phase, data rights, directed licensing prerogatives, royalty arrangements, and other contractor commitments needed to permit continued competition must be obtained as early as possible in the program. Commitments to enhance industrial base capability must permit continued competition to the maximum extent practicable. In addition, both the government and its contractors shall consider component breakout throughout the acquisition cycle to enhance competition. Techniques and procedures that result in cost auctioning between prospective contractors or technical transference before competitive source selection are prohibited.

19. Specifications and Standards. In the early phases of a program, specifications and standards normally must be written in terms of performance and functional requirements. The number of mandatory specification and standards included in a contract will be limited to essential requirements. Advisory specifications and standards that are not contract requirements will be identified as non-mandatory. Government specifications and standards should be tailored in their applications, as described in DoD Directive 4120.21, and should, when practical, reflect acceptable commercial products and practices. (see DoD Directive 5000.37). When appropriate, acceptable voluntary (nongovernment) standards should be used in preference to government specifications and standards. (See DoD Directive 4120.3)

20. Pre-Proposal Briefings and Draft Solicitations. Contracting officers and program managers should conduct orientation briefings for all interested participants and encourage industry to comment on drafts of solicitations. The objectives are to remove inhibitors to innovative solutions and to achieve system objectives efficiently and effectively.

27. Command and Control (C²) Systems.

a. The types of systems that augment the decision-making and decision executing functions of operational commanders and their staffs in the performance of C² require a tailored acquisition strategy. The principal characteristics of such systems are; (1) acquisition cost normally is software dominated; (2) the system is highly interactive with the actual mission users and is highly dependent on the specific doctrine, procedures, threat, geographic constraints, and mission scenarios of these users; and (3) these systems are characterized by complex and frequently changing internal and external interfaces at multiple organizational levels, some of which may be inter-service and multinational.

c. The DoD Component briefing presented to the DSARC at Milestones I and II will include the following affordability considerations:

- (1) Comparison of program resource estimates with latest PPBS projections (including the EPA).
- (2) Identification of the relative ranking for the proposed system and the DoD Component's other major systems in the same mission area and general time frame in the latest program or budget submission.
- (3) Analysis of variation in unit cost (recurring hardware, flyaway, and procurement) with production rate (Milestones II and III if Milestone III is a Secretary of Defense review). Analysis should allow comparison of baseline and enhanced (projected improvements from manufacturing technology, technology modernization, and producibility programs) production scenarios. Production rates for cost comparisons will include projected surge rates reflected in acquisition plans.
- (4) Identification of potential offsets necessary to provide the resources to execute the remaining phases of the program when program cost estimates provided to the DSARC exceed latest budget projections. When joint programs are involved, offset identifications should not be limited to the lead DoD Components.

5. Timeliness. An objective of any acquisition is the achievement of Service operational capability (deployment in operationally significant quantities rather than one or a few initial operational capability (IOC) units) within the time dictated by the need or threat. When technical, cost, and supportability risks are low, or when the urgency to counter a threat transcends high technical, cost, and supportability risks, DoD Components should give consideration to lessening acquisition time by planned concurrency and industrial base capacity enhancement. The degree of concurrency will be based on the extent of potential savings in acquisition time balanced against technical, cost, and supportability risks, and urgency of the mission need in each acquisition program. To achieve timely deployment, consideration may also be given to accepting system performance growth after deployment. Programs with planned concurrency must be adequately funded at the front end and give special attention to reliability and maintainability (R&M), personnel, and support requirements to balance readiness risk that could result from a shortened acquisition time. Alternative acquisition strategies for a given design concept may be proposed at Milestone I. A discussion of risks and costs associated with each strategy will be provided. Administrative delays associated with briefings and reviews at various organizational levels must be minimized.

6. Acquisition Strategy

a. An initial program acquisition strategy will be developed by the DoD Component concerned for each major system acquisition when a new start is proposed. The acquisition strategy should be tailored to the unique circumstances of the program. Proposed exceptions to applicable DoD Directive and Instructions will be identified in the acquisition strategy as it evolves. Advice and assistance should be sought from business and technical advisors and experienced managers of other major system programs.

b. The acquisition strategy is the conceptual basis of the overall plan that a program manager follows in program execution. It reflects the management concepts that will be used in directing and controlling all elements of the acquisition to achieve specific goals and objectives of the program and to ensure that the new system satisfies the approved mission need. The acquisition strategy encompasses the entire acquisition process for the basic system, preplanned product improvements (P³I), and post-production support. The strategy must be developed in sufficient detail, at the time of issuing solicitations for the concept exploration phase, to permit competitive exploration of alternative system design concepts. Sufficient planning must be accomplished for succeeding program phases, that involve design, competition, provisioning and support economies, and production source availability.

c. The acquisition strategy must evolve through an iterative process and become increasingly definitive in describing the interrelationship of the management, technical, business, resource, force structure, support testing, equipment standardization, and other aspects of the program. Normally, the baselining and definition of a program will progress from establishment of operational requirements (JMSNS) to functional characteristics (Milestone I) to an allocated functional baseline (Milestone II) to a production baseline (Milestone III).

d. Acquisition programs will be executed with innovation and common sense. The flexibility inherent in DoDD 5000.1 and DoDI 5000.2 will be used to tailor an acquisition strategy to accommodate the unique aspects of a particular program, as long as the strategy remains consistent with the basic logic for system acquisition problem solving and good business and management principles.

7. Participating Activities.

a. The Department of Defense will use all appropriate participants in the acquisition process to obtain the most efficient and effective systems obtainable within available resources. Organizational entities will include commercial organization, federally-funded research and development (R&D) centers, government R&D centers, colleges, and universities to the full extent that their capabilities and expertise can contribute to the acquisition objectives.

b. Use of Government or Not-For-Profit Organizations. When government laboratories, federally funded R&D centers, educational institutions, and other not-for-profit organizations submit alternative major system design concepts for consideration, care must be taken to exclude such proposing organizations from participating in the evaluation process. If further exploration of an alternative system design concept submitted by one of these organizations is appropriate, that concept may be made available to industry to propose in subsequent continued development stages. Where no competitive capability exists in the private sector or when it is in the best interest of the government to do so, DoD R&D centers may be assigned development tasks to facilitate a major system acquisition. DoD R&D centers may be used as a technical arm of the program management office. Typical assignments include actions such as studies, analyses, technology development and assessment,



THE SECRETARY OF DEFENSE

WASHINGTON, THE DISTRICT OF COLUMBIA

9 SEP 1982

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
 CHAIRMAN OF THE JOINT CHIEFS OF STAFF
 UNDER SECRETARIES OF DEFENSE
 ASSISTANT SECRETARIES OF DEFENSE
 GENERAL COUNSEL
 ASSISTANTS TO THE SECRETARY OF DEFENSE
 DIRECTORS OF THE DEFENSE AGENCIES
 DIRECTORS, OSD FIELD ACTIVITIES

SUBJECT: Competitive Procurement

I am convinced that we must give greater attention to obtaining competition in the placement of contracts by all Department of Defense components. The benefits derived from competition are well recognized. Competition serves to reduce cost, improve quality, and enhance the industrial base that is so critical to defense mobilization. The policy to obtain maximum competition is prescribed by the Armed Services Procurement Act, and it is reiterated by Executive Order 12352 and at various points in the Defense Acquisition Regulation. It is our responsibility to assure that this policy is adhered to rigorously. This responsibility was stressed by the Deputy Secretary in his memorandum to you dated July 27, 1981, in which he advised that he had added an initiative on increasing competition to those already being addressed by the Acquisition Improvement Task Force. Because of the importance I place on competition, and because more progress can and must be made, I now reiterate that guidance.

The Department of Defense components are to place maximum emphasis on competitive procurement. All personnel involved in the acquisition process from the first identification of the requirement through the execution of the purchase should recognize this responsibility. Contracts will be placed on other than a competitive basis only when clearly justified.

No type of purchase is automatically excluded from this direction to maximize competition and this direction applies regardless of the level of the requesting official or the importance of the subject matter of the contract. Particular attention should be given to those areas where the assumption traditionally has been made that competition is not available. Department of Defense components should plan acquisition schedules to allow adequate time for the competitive procurement process. When competition can not be obtained, the reasons should be fully and carefully documented in accordance with our acquisition regulations.

Fulfillment of this objective to increase competition requires a commitment on the part of all Department of Defense personnel who are involved in the acquisition process. It is our responsibility to develop and maintain this commitment. I ask that you give this matter the high level of attention that I believe is required if we are to make progress.

Joseph W. Kent



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

12 MAR 1984

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS

SUBJECT: Programming and Investing for Competition

A recent review of noncompetitive contract actions by the High Level Working Group on Competition found that relatively few actions account for most of the noncompetitive dollars. A major share of our noncompetitive dollars originates in follow-on awards after initial competition (customarily during the development phase of a major program). This clearly indicates that competing just a few additional high-dollar military contracts in production could provide substantial benefit to our overall competition efforts.

We do a good job competing the development phase of major programs. I am aware of your strong support of competition in the production phase as well. However, competition often stops with award of the first production contract or earlier. It is viewed as being too expensive in most cases to maintain two producers, given other budgetary pressures, even though up to 70 or 80 percent of total program costs are associated with production. We must surface and debate the merits of such investments if we are to continue to make progress and achieve potential downstream benefits at the prime or other component contract level where investment costs are lower. I am unable to assess personally the costs and benefits of competition in the production phase when these alternatives are cut out during the Service budget reviews.

To indicate clearly DoD's commitment to competition and sound business judgement, and in keeping with direction from both the President and the Secretary of Defense, I urge aggressive pursuit of production competition in those programs where the expected benefits exceed the expected costs. As a step in this direction, I would like you to review all major programs expected to enter full-scale development (FSD) within the next two years. Identify for me, by the end of April, programs in which the expected quantity and associated production rate are deemed sufficient to facilitate enhanced competition. In those cases where production competition, at either the prime or subcontract level, offers substantial benefits, but is not included in current acquisition strategy, I would like you also to identify any additional investment required to undertake a competitive program along with expected benefits.

We will support the best of these programs through the budget process up through Congress. These programs will then provide Congress with a clear record of the downstream costs to be avoided if the requested investment is authorized and appropriated.

William H. Taft, IV



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

12 MAR 1984

MEMORANDUM FOR SECRETARY OF THE ARMY
 SECRETARY OF THE NAVY
 SECRETARY OF THE AIR FORCE
 DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Data Rights

One inhibitor to breakout or development of competitive sources for spare parts and subsystem components is the "limiting" of data by contractors asserting proprietary rights. Recent reports suggest that current weapon system components and parts have been coded as proprietary in part because DoD had allocated inadequate resources to the early planning and effective implementation of methods for dealing with this problem.

The High Level Working Group on Competition, composed of representatives from each Service and DLA, has examined DoD policies and practices for acquiring rights in technical data and computer software. It sought to recommend changes to policies and practices on acquiring rights in data to enhance breakout and competitive procurement of weapon system components and parts. Attached is its report with proposed recommendations.

It is often necessary or advantageous to incorporate proprietary items and software in a weapon system. We should, nevertheless, reduce the quantum of data encumbered by proprietary restrictions by implementing two initiatives. We should plan early in the acquisition process for later breakout and development of competitive sources for replenishment items including, if appropriate, incentives for contractors to achieve this goal. Second, we should exert more discipline over the procedures by which contractors introduce proprietary items into weapon design as well as more careful assessment of asserted proprietary rights.

The report emphasizes the need to develop a middle ground in acquiring and using data associated with proprietary items as an alternative to the current choice between limited and unlimited rights. An initiative along these lines could open up broad areas of procurement for enhanced competition.

I ask that you review the attached report and provide formal comments and suggested improvements by April 16, 1984. We are seeking to change our data rights policies and practices to strike a better balance between the need to encourage innovation by rewarding inventive talent and capital and the need to achieve more effective competition and an enhanced defense industrial base.

A parallel study is underway in response to a Congressional tasking to consider the feasibility of acquiring all data rights for reprourement purposes.

William H. Taft, IV

Enclosure
 As stated

SUBGROUP REPORT
ON
RIGHTS IN TECHNICAL DATA
AND COMPUTER SOFTWARE

1. Initiative: Clarify DOD policies on acquisition of rights in technical data and computer software used to manufacture weapon system replenishment items, components or parts (hereafter referred to as spare parts).
2. Purpose of Subgroup: To clarify or recommend changes to DOD data rights policies to reduce the amount of technical data and computer software that is encumbered by restrictions on the Government's right to use it for breakout or competitive reprocure-ment of spare parts.
3. Background: An inhibitor to the breakout or the development of competitive sources for spare parts is contractor claims of proprietary rights on technical data and computer software. The subgroup examined whether DAR Section IX and related management practices offer appropriate means for managing this problem. The Government's need to recognize proprietary rights to encourage innovation and its need to achieve competition and an enhanced industrial base was considered.
4. Research Conclusions: Our review of DAR and current data rights initiatives led to the following conclusions:
 - a. Basic concepts underlying existing DOD policy are generally sound.
 - b. However, improvements to DOD procedures are required.
 1. Planning for the breakout or development of competitive sources for spare parts should be accomplished early and refined throughout all phases of an acquisition program. This planning should specifically address the merits of excluding or including in hardware design items, components, processes

or computer software developed at private expense (hereafter referred to as proprietary items or software). If inclusion of proprietary items or software is desired, this planning should address whether and how proprietary spare parts should be competed in the future.

2. DOD should continue to acquire only such data rights as are essential to meet Government needs. DOD should obtain necessary data with sufficient rights in the data to achieve breakout or develop competitive sources for spare parts where it makes good business sense to do so.

3. DOD should improve its capabilities for assessing the validity of a contractor's claim that an item, component, process or computer software was developed at private expense and for ensuring the completeness, accuracy and adequacy of data delivered by the contractor.

4. Where more than limited or restricted rights to data associated with proprietary items or software are desired, DOD should continue to reward inventive talent and capital, but do so in consideration of its related responsibilities to pay fair and reasonable prices and to achieve competition and an enhanced industrial base.

c. Detailed comments and specific recommendations are provided as attachments to this report.

5. Recommendation: The High Level Working Group should ask concerned DOD agencies to comment on this report. These comments should be forwarded to USDRE and include examples of contract clauses and other pertinent information that illustrate agency initiatives in the data policy area. In turn, USDRE should implement policy changes as appropriate.

Robert E. Hergenroeder

ROBERT E. HERGENROEDER, Major, USAF

Subgroup Chairman

Norman E. Brown

NORMAN E. BROWN, USN

Member

E. D. Collins

EDWARD D. COLLINS, DLA

Member

A. Carr

ALBERT CARR, USA

Member

ATTACHMENT 1
PLANNING FOR THE BREAKOUT OR
COMPETITIVE ACQUISITION OF SPARE PARTS

1. DOD is required to competitively acquire, operate and maintain weapon systems developed under research and development contracts. Contractors and their subcontractors prepare data as an integral part of the design, development and production effort. DOD relies on this data throughout the life cycle of the hardware to perform management, engineering, maintenance, modification, competitive procurement of spares, test equipment and other logistics functions. Therefore, program managers must plan from the outset of the acquisition process to guide contractors and subcontractors to make sure that complete and accurate data with appropriate data rights are delivered when needed at the minimum life cycle cost.
2. A key program decision is whether to incorporate proprietary items or software in a weapon's design. It may be possible in programs pursuing less complex and more mature technology to restrict engineering design to non-proprietary items or software. However, many of DOD's acquisition programs will find it advantageous to include such in hardware design. This approach provides greater likelihood for obtaining quality technology while avoiding schedule and cost risks associated with developing alternative design solutions.
3. Where incorporation of proprietary items or software in hardware design is desired, the following actions should be taken during the full scale engineering development phase to enhance later achievement of breakout or development of competitive sources for spare parts:
 - a. The Government should use source selection criteria and other incentives such as award fees to incentivize contractor actions to enhance breakout or development of competitive sources for spare parts. These criteria and incentives should address the contractor's make-or-buy plan, engineering design in terms of utilizing commercially available components, non-proprietary items and software and competitively available vendor material;

and management plan to facilitate early breakout, to establish qualified competitive sources for spare parts which drive a weapon system's cost and to provide such complete, accurate and adequate acquisition data packages and sufficient rights in this data to permit another competent manufacturer to fabricate the subject item without requiring substantial technical assistance from the original contractor.

b. Competition shall be used to the maximum practical extent to obtain needed rights in data at reasonable prices. A contractor's priced proposal should include as a distinct line item the cost of data, and as an option, the acquisition of rights in data associated with proprietary items or software. This approach may be further tailored by category of data rights (e.g., prime contractor, subcontractor A, etc.) and used in conjunction with deferred ordering techniques since in this manner the Government is likely to pay only for that data which is ultimately desired and delivered.

4. Finally, DOD should reexamine its instructions, military standards and data item descriptions to assure that resultant contract requirements will yield data that is so complete, accurate and adequate that another competent manufacturer can fabricate the item with little or no need for technical assistance.

ATTACHMENT 2

BUSINESS RELATIONSHIPS IN ACQUIRING TECHNICAL DATA AND COMPUTER SOFTWARE

1. Greater attention should be given by DOD contract administration services to validating the already DAR mandated contractor's management system for determining whether an item, component, process or software is developed completely at private expense. Formal reviews should be conducted on a regular basis with resulting determinations forwarded to concerned procuring agencies (This is a refinement of policy found in DAR 9-202.3(c)).

2. DOD should pursue the following business relationships in

acquisitions that have the potential for involving proprietary items or software:

- a. The contractor must notify DOD of the intention to include proprietary items or software in hardware design. This notification should be given when responding to a solicitation and upon any subsequent determination to include proprietary items or processes in hardware design. Included in this notification must be clear and convincing evidence that the item or software was developed completely at private expense.
- b. To be considered developed, an item or component must have been constructed, a process practiced, or computer software, used, and in each case must have been tested to the extent necessary to determine that it is capable of accomplishing its intended practical purpose. When an item, component, process or software does not meet these criteria, separable portions thereof that do meet these criteria will be considered to have been developed.
- c. Failure to notify DOD before inclusion of a proprietary item or software in hardware design (for example, prior to identifying and entering an item into the configuration management system) should result in forfeiture of the right to limit DOD to limited or restricted rights in the associated data. This arrangement is considered appropriate as otherwise DOD will not be afforded sufficient opportunity to pursue alternatives to use of proprietary items or software. At the Government's option, a procedure may be established to automatically authorize the contractor to include a proprietary item or software if formal contracting officer disapproval is not rendered within a specified time period. (This is a refinement of policy found in DAR 7-104.9(b)).
- d. Upon submittal of the above described notice and evidence, DOD shall have the right to furnish same to a consultant firm for the express purpose of assessing the validity of a contractor's asserted claim. The consultant firm shall be prohibited from disclosing such data and shall not be a direct competitor of the originating contractor. DOD shall use information furnished by the consultant firm in assessing

the contractor's claim. All disputes shall be subject to the disputes clause of the contract (This is a refinement of policy found in DAR 9-202.2(g)).

e. Should DOD accept a contractor's assertions regarding proprietary data, an option should be available to acquire a license or royalty-free use rights in that data. In the case of a license, the fee should be paid over a specified period of time or up to a specific event, after which the license reverts to a royalty-free use or an unlimited rights arrangement. Also, this arrangement may provide for a reduction, suspension or termination of fee during periods of extreme national emergency.

(This is a refinement of policy found in DAR 9-202.1(c) and 9-202.2(f)).

f. Upon furnishing contractually required data pertaining to a proprietary item or software, DOD should have the right to provide all such data to a consultant firm for the express purpose of determining the completeness, accuracy and adequacy of the data for its intended purpose. Further, the contractor should be required to warrant the completeness, accuracy and adequacy of the data for its intended purpose. Finally, at a later date should this data be used by the Government for the purpose of competitively reprocurring the applicable spare part, and should such data be found to be incomplete, inaccurate or inadequate; the original contractor should be required to promptly correct any deficiencies in data identified by the Government, to furnish such technical assistance as is necessary for the successful manufacture of the applicable spare part and to reimburse DOD for such additional costs incurred as a result of using defective data. (This is a refinement of policy found in DAR 7-104.9(o)).

g. All data pertaining to items or software developed at private expense should be marked as required by DAR. Should such data be furnished and not be appropriately marked, the contractor may petition DOD to place such markings on the data provided this petition is presented within 90 days after

furnishing the data. Furthermore, the contractor should furnish all correction pages, drawings, etc. and bear the administrative cost of inserting same in DOD data bases/files/manuals. Failure to do this within the prescribed period shall relieve DOD of any liability with respect to such data. (The time period is a refinement of policy in DAR 9-202.3(d)).



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

12 MAR 1984

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Increasing Subcontract Competition

The need for increased effective competition is a major initiative that has been stressed on numerous occasions in recent years. The term, effective competition, encompasses the intelligent use of competitive forces to enhance overall value to the government, considering the life cycle benefits (economic, technical, schedule, or supportability) to be derived from competition and the life-cycle costs of obtaining competition. We must improve the use of effective competition to obtain greater economic benefits in our procurement programs.

Major emphasis has been placed on competition at the prime contract level. A study by the Army Procurement Research Office, covering 12 major Army, Navy, and Air Force systems revealed that there is significant potential for increased subcontract competition, particularly at the component level (APRO Report 82-11). We must encourage more effective subcontract competition whenever practicable, such as in the general sets of circumstances set forth at Enclosure 1.

Different methods for encouraging prime contractors to award subcontracts competitively may be employed. Five possible methods are outlined at Enclosure 2. Any method selected should be judiciously employed on a case-by-case basis after careful consideration of all relevant factors involved in a particular procurement and after it has been assured that its use would not adversely affect other aspects or provisions of the solicitation or the resulting contract. Although special subcontract competition reporting requirements may be required by individual contract incentive clauses, we do not encourage general reporting of such competition in consideration of our efforts to reduce the paperwork burden of our contractors.

Efficient subcontract management by the prime contractor with proper emphasis on competition is the optimum situation. However, action to increase effective subcontract competition should be vigorously pursued whenever it is practicable.

William H. Taft, IV
William H. Taft, IV

Enclosures

FACTORS FOR CONSIDERATION IN DETERMINING THE NEED FOR INCREASED SUBCONTRACT COMPETITION

Increased effective subcontract competition may be appropriate, given sufficient time and net economic benefits, if one or more of the following situations exist:

a. Primary Factors:

- o When there are high-priced components.
- o When quantities being procured are sizeable.
- o When the requirements for the item are expected to continue for a considerable period of time.
- o When it has been assured that the existing subcontractor possesses standard manufacturing techniques required for production of the item and has no proprietary rights for the component being considered. (If the subcontractor possesses exclusive manufacturing techniques or has proprietary rights, downstream subcontract competition may still be pursued if economically feasible or in the interest of industrial mobilization.)
- o When to do so would fulfill a need to enhance the industrial base or mobilization capabilities, or when future requirements are expected to exceed planned subcontractor capability.

b. Additional Factors:

- o When there is a problem, or a potential problem in performance of the major end item that can be attributed to the subcontracted item. Use of another subcontractor with better manufacturing capability or technical expertise could resolve the problem.
- o When delays in delivery of the major end item have been attributed to late receipt of the subcontract item, and delivery improvement is not otherwise expected.

POSSIBLE METHODS OF ENCOURAGING INCREASED SUBCONTRACT COMPETITION

Five possible methods of increasing subcontract competition are as follows:

1. Directed Subcontract Second Sourcing - Experience indicates that the relatively low investment cost required to direct effective subcontract competition for selected key components can subsequently result in high payoffs. This is considered to be a primary method of obtaining the benefits of subcontract competition in production, especially where the producer is sole source. Contract provisions could be negotiated to require competitive purchase of specific subcontracted items. These items can be identified during pre-award review of the contractor's "Make or Buy" plan.
2. Use of Award Fee Provision - Award fee dollars should motivate prime contractors to increase effective competition at the subcontract level. Award fees could be tied to established subcontract competition goals based upon historical data, with additional fee (profit) provided for performance above the established goal.

3. More Detailed Analysis of Prime Contractor's Subcontractor Proposals - Provide, during negotiations, a process which requires the prime contractor to justify in detail the rationale for NOT competing subcontractor requirements. Subcontractors whose pricing trends are unsatisfactory should be challenged by the government. Consideration should be given to requiring formal government consent to awards involving problem subcontractors.

4. Increased Emphasis on Contractor Procurement System Reviews - Contract Administration Offices should review prime contractors' procurement systems with the intent of emphasizing needed improvement in subcontractor competition, as well as improved subcontractor negotiations. More periodic follow-up on procurement system reviews should be made.

5. Source Selection Criteria - For competitively negotiated contracts based primarily on nonprice considerations, the extent of competition in subcontracting can be made a part of the source selection criteria. This should be in instances when it is determined that effective subcontract competition is both feasible and desirable. Exercise of prudent judgment is required in making this a part of the selection criteria.

QUESTIONS SUBMITTED BY SENATOR WEICKER

Additional Personnel

Question: The FY85 budget includes a request for 4000-5000 additional procurement/contract personnel. Why are these additional personnel needed?

Answer: In addition to the 700 personnel funded in 1984, we have budgeted for 2803 personnel in 1984 and 3917 additional personnel in 1985. These people are allocated as follows:

Service	FY 84	FY 85
Army	1063	1286
Navy	550	735
Marine Corps	54	54
Air Force	1000	4509
Defense Logistics Agency	836	836

The functional assignment of the personnel is subject to need. At the present time, it is anticipated roughly 25% of the people will be assigned to contracting functions, another 25% to pricing functions, and the remaining 50% to breakout functions. These additional people are needed because there are no shortcuts to a hands-on individual analysis of each buy of each spare part at this time. Eventually, automated systems we are now planning will permit a reduction of manual reviews. In the meantime, the breakout of items for competition and the determining of reasonable price on even low dollar buys requires huge quantities of manpower who are trained and qualified in certain specialties. There are not sufficient quantities of such people in the DoD to perform these functions and still maintain the other essential functions of acquisition. The need for these people is consistent with actions taken in prior years to conserve funds by reducing the people who formerly performed these functions.

Use of New Contractual Clauses

Question: Would it be possible to better manage the procurement of spare parts and to obtain more advantageous prices through the use of new contractual clauses?

Answer: Yes, we believe it is possible, and we are not just limiting ourselves to new clauses. Our initiatives have also shown a need for both clause revisions and the broader application of existing clauses. For example, the Value Engineering Incentive clause is now required in contracts of \$25,000 or more for spare parts and repair kits (other than standard commercial parts). The threshold was formerly \$100,000. Another example is the recently directed development of a "most favored customer assurance" clause for general procurement use. As ongoing additional investigations are completed and reform activities mature, we expect further need for the revision, extension, or development of contractual clauses.

Type of Contractual Clauses Used Advantageously

Question: What types of contractual clauses could be used to obtain more advantageous spare parts prices?

Answer: We believe the previously mentioned "most favored

customer assurance" clause is the type of clause that can be used advantageously.

Most Favored Customer Price

Question: Please describe the most favored customer price?

Answer: This is a price equal to or lower than the lowest price for which the contractor sold the item under substantially the same terms and conditions.

Legislation to Strengthen Contractual Clauses

Question: Is legislation needed to strengthen contractual clauses?

Answer: As we progress in our reforms, we may find that we need enabling legislation. Our experience to date, however, indicates that appropriate remedies are within our regulatory powers. We are committed to the pursuit of legislation when management action would be insufficient.

Senator Weicker: A whole new set of practices and procedures have been put into effect to correct abuses in the spare parts procurement process. Has the Department undertaken any follow-up audits to determine the effectiveness of these new initiatives? If so, what were their findings?

Ms. Gilleece: The Department of Defense Inspector General has not undertaken any follow-up audits to determine the effectiveness of the new initiatives. While we have every reason to believe that these initiatives are being implemented, it is probably too early to see those initiatives reflected in auditable data. It will be some time before all the unpriced orders and items procured but not delivered under price redeterminable basic ordering agreements are delivered.

Several problems have been identified in the spare parts procurement process and the IG, DoD has started seventeen audits addressing these problems since the initiatives were announced by the Secretary. As of March 26, 1984, all of these audits are still in process so we are unable to provide you with the results of these audits at this time. The results of these audits can be provided to you when the reports are issued, if you so desire.

The largest of these efforts is the DoD-wide audit of Spare Parts Pricing. The objectives of the audit are to quantify the extent that unreasonable prices are being paid, identify the practices that have led to these conditions and determine if changes in policies and procedures are needed to achieve economical acquisitions. We are concentrating on the major contractors who provide the largest dollar volume of spare parts to the Department. This audit will not directly cover the effectiveness of the new initiatives

since the purchases being audited were made prior to complete implementation of the initiatives. However, the audit will assess the extent of which the new initiatives will correct any problems uncovered and recommend additional initiatives if the auditors determine that the existing effort might not correct a problem. This audit should be completed this spring.

Test Program

Question: In July-August 1983, the Secretary of Defense issued strict guidance on the acquisition of spare parts. His memorandum of August 29, 1983, called for a TEST PROGRAM. Describe this program? Has it been implemented?

Answer: We believe you are referring to the so called "model" concept, which is conceived as a means of eliminating disincentives on industry to facilitate breakout and competition of spare parts.

Practices in the acquisition of military systems bear directly on our ability to break out spare parts. Traditional approaches of major system acquisition sometimes disincentivize prime contractors from utilizing or incorporating spare parts which can be broken out more readily during the production and post-production phases.

The "Model" Concept program is intended to motivate industry to achieve a potentially more competitive environment for spare impact on design and the subcontract matrix. The system designer has vast opportunities to determine and ordain the eventual availability of competition (or its absence) in the production phase, since system development includes the design or selection of sub-systems, components, and parts. Accordingly, to effectively motivate industry and benefit the government, we are attempting to structure incentives that are financially beneficial to both industry and government through all phases of acquisition, but which require neither investment nor administration costs that are excessive relative to the benefits.

This "model" concept applies to high dollar systems which are not inordinately complex but which are either entering or are in the early aspects of full scale development. It should also be considered for lower dollar systems with similar characteristics. Selected programs should anticipate significant life cycle costs in spare parts and high production run/quantities.

The details are still in development. Primarily, we are evaluating elements that would require offerors of system development projects to prepare technical and management plans for using common parts, permitting early breakout and competition of parts, and developing "second source" subcontractors where appropriate. In consideration, the government would pay the contractor for the plan, and use an incentive award for his performance. Another innovation would entail additional reward to the prime contractor for developing and maintaining competitive subcontractors where competition would not otherwise exist.

We are nearing completion of policy development and are about to task the Services to select candidate systems and initially apply the concept. It should be noted that the benefits of this concept will not be measureable for several years when procurement of replenishment parts is required.

QUESTIONS SUBMITTED BY SENATOR BYRD

LIST OF PENALTIES

Question: What kind of penalties have been imposed by the Department of Defense on the contractors who have been responsible for the pricing abuses revealed by the reports of the Inspector General and through Congressional testimony? What recommendations for Legislation does the Department recommend to make penalties for these actions more meaningful? Please provide an itemized list of the penalties which have been imposed since January 1, 1983?

Answer: Although DOD contracts do not (and cannot) contain penalties to be applied when overpricing occurs, there are adverse consequences for contractors who have overpriced contracts. These consequences include those remedies built into individual contracts, those that are applied by DOD policy, and those that are applied by law.

Examples of remedies in each area are shown below:

Contractual Remedies -

Defective Pricing Price Reductions

Terminations

Non exercise of options

Disputes Clause

Notice of Intent to Disallow Costs

Withholding Payment

Allowable Cost Clause

Most Favored Customer Clause

Remedies Applied by Policy -

Voluntary refunds

Removal of Contractor System approval (e.g., Purchasing System, Accounting System, Quality System, Estimating System)

Debarment and Suspension

Alternate Source Development

Remedies applied by law -

Fraud

False claims

The actions that can be taken by the Government are very broad and each one is tailored to the type and severity of the particular contractor pricing abuse. Because these remedial actions are so varied, we do not keep any central record of their use. However, the attached consolidated list of debarred, suspended, and ineligible contractors displays firms and individuals who have been made ineligible to do business with the Government for reasons such as pricing abuses. Each such firm in the list is coded to show the cause of their debarment or suspension. Also attached is a list showing the number of contractors and individuals convicted for procurement fraud together with the total dollar value of fines levied and a summary of administrative actions as a result of investigations conducted by the Air Force Office of Special Investigations.

2 Atch

1. Debarred, Suspended & Ineligible List
2. Contractors & Individuals Convicted

ACTION AGAINST CONTRACTORS/CONTRACTOR PERSONNEL
FOR PROCUREMENT FRAUD SINCE 1 JAN 83
TOTAL CASES

<u>CASES WITH COMPLETE ADJUDICATION</u>	<u>NO ACTION AFTER OSI INVESTIGATION</u>	<u>ACTION TAKEN AFTER INVESTIGATION</u>	<u>INVESTIGATION REPORT RECOMMENDED NO ACTION</u>
102	39	36	27

ACTION AGAINST CONTRACTORS/CONTRACTOR PERSONNEL
FOR PROCUREMENT FRAUD SINCE 1 JAN 83

TOTAL FINES \$10,267

ADMONITION	1
AUDITOR SURV	0
BID REJECTED	0
CONTRACT TERM	3
DEBARRED BID	1
PER DEBARRED	0
REMOVED SOURCE	0
OTHER*	29
CONVICTED	1
INDICTMENTS	1

* Other action is such minor things as a restatement of contract terms, a reminder to follow policy, etc.

CONSOLIDATED LIST OF DEBARRED, SUSPENDED, AND INELIGIBLE CONTRACTORS

as of February 10, 1984

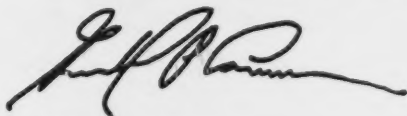
February 1984

**U.S. General Services
Administration
Office of Acquisition Policy**

This monthly publication of the General Services Administration (GSA) is issued pursuant to Policy Letter 82-1, dated June 24, 1982, of the Office of Federal Procurement Policy (OFPP). This publication provides a single comprehensive listing of business firms and individuals debarred, suspended, or otherwise excluded by Government agencies from receiving Federal contracts.

An important feature of the OFPP Policy Letter is that "administrative" debarments or suspension actions effected after August 30, 1982, in accordance with the new policy, will have Government-wide application. This publication will keep agencies abreast of these significant actions and the many "statutory" debarment and suspension actions taken throughout the Government.

Contracting is an important, highly visible function of the Federal Government. The information that Federal agencies share through this publication should help to ensure that the Government contracts only with responsible firms and individuals. Therefore, I urge contracting officials of all agencies to carefully examine this publication and rigorously adhere to its instructions. As guardians of the taxpayer and the public trust, all Federal agencies have an obligation to ensure the integrity of the contracting process, which is a high-priority goal of this Administration.



GERALD P. CARMEN
Administrator
U.S. General Services Administration

Consolidated List of Debarred, Suspended, and Ineligible Contractors

The Consolidated List of Debarred, Suspended, and Ineligible Contractors is a comprehensive listing of business concerns and individuals excluded from receiving Federal contract. It is maintained by the General Services Administration (GSA) and published monthly for the use of Federal agencies. The List is issued pursuant to the Office of Federal Procurement Policy's Policy Letter 82-1. Additional information concerning the List is available in Federal Procurement Regulation 1-1.6 and Defense Acquisition Regulation 1-6.

The List supersedes the consolidated lists of administrative debarment previously published by GSA and the Department of Defense (DOD). Individual agency lists of debarred, suspended, and ineligible contractors, formerly required by the Federal Procurement Regulations, are no longer necessary.

Purpose of the List

The first function of the List is to notify Federal agency contracting officials of those contractors which are barred governmentwide from participating in Federal contracting programs. Such exclusions may be based on the administrative debarment or suspension of a contractor by any agency on or after August 30, 1982, in accordance with OFPP Policy Letter 82-1, or on a similar action by an agency on the authority provided by statute or executive order.

Second, the List circulates information concerning those contractors administratively debarred or suspended by agencies before August 30, 1982. Generally, these exclusions apply only to the contracting programs of the agency which took the action. However, DOD contracting officials are subject to the special rules of Public Law 97-86, section 914 (See For DOD Users at Code A under the heading "Cause and Treatment Codes").

The specific treatment to be accorded listed contractors may differ depending on the type of exclusionary action and the authority under which it is taken. The basis for the listings and the effect of the exclusionary actions are described under the heading "Cause and Treatment Codes."

How To Obtain Copies

Federal agencies may purchase their annual List requirements in bulk from the U.S. Government Printing Office at cost and provide for their internal

distribution. Specific instructions concerning List subscriptions have been given to each agency's designated procurement executive.

Other parties interested in obtaining subscriptions to the List should contact the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The commercial telephone number is (202) 783-3238; the Federal Telecommunications System (FTS) number is 783-3238.

How To Use the List

In the interest of reducing paperwork and printing costs, the List is presented in a concise format with the names of debarred, suspended, and ineligible contractors listed alphabetically in main and cross-reference entries. An initial asterisk indicates an action without government-wide effect.

In a cross-reference, the name under which the entry is listed is in lighter type followed by the name, in **boldface**, under which the main entry is indexed. Generally all information on the contractor, the action, and the term of action is shown in the main entry; except, when the address or termination date is different from the main entry.

In a main entry, the initial name is in **boldface** and is followed by:

- An address.
- An alphabetical listing, in italics, of other contractors involved in the action.
- A code letter indicating the cause of the action and the treatment to be accorded the listed contractors.
- The abbreviated name of the agency or other authority imposing the action.
- The termination date of the action, in **boldface**.

Information is in the same order in each entry. However, some entries may be incomplete, particularly where the exclusionary action was taken prior to the OFPP Policy Letter and only limited information was provided to GSA. For additional facts, contact the agency taking the action.

Cause and treatment codes are explained under the heading "Cause and Treatment Codes" on page 4.

Agency contacts are listed under the heading "For Additional Information."

For Additional Information

Details concerning the debarment, suspension, or determination of ineligibility of contractors can be obtained by telephone from the persons noted below for each agency. All telephone numbers are in area code 202, but Federal officials calling long distance should use the FTS (Federal Telecommunications System) or AUTOVON (Automatic Voice Network). The agency arrangement is by the alphabetical order of the agency symbols.

AF, Department of the Air Force
Edward Cheek
694-5337

AID, Agency for International Development
Robert S. Perkins
632-8874

ARMY, Department of the Army
Charlene McCoy
697-3462

DLA, Defense Logistics Agency
Janet Cowie Cook
274-6162

DOC, Department of Commerce
John Dammeyer
377-4248

DOE, Department of Energy
Scott Sheffield
252-8267

DOI, Department of Interior
David Metz
343-3345

DOJ, Department of Justice
Larry Silvers
633-3217

DOL, Department of Labor
Sylvester L. Green (Codes D and G)
523-7541

William Faughman (Code F)
523-8767

Daniel P. Murphy (Codes A and B)
523-9631

DOT, Department of Transportation
Bill Irish
426-4238

EDUC, Department of Education
M. Thomas Seagars
245-1766

EPA, Environmental Protection Agency
Michael Randall (Code H)
392-2931

Belle N. Davis (Codes A and B)
475-8025

GAO, General Accounting Office
Floyd Phillips
275-6183

GSA, General Services Administration
Juan L. Smith
523-4873

GPO, Government Printing Office
Jim Livsey
275-2595

HHS, Department of Health and Human Services
Charles Seed
245-8740

HUD, Department of Housing and Urban Development
George Pluta
755-6401

NASA, National Aeronautics and Space Administration
Tom Whelan
453-2114

NAVY, Department of Navy
Richard L. Schulte
692-8657

PS, Postal Service
Nancy Robinette
245-4818

STATE, Department of State
Robert Day
235-9512

TREAS, Department of Treasury
Thomas O'Malley
566-2586

USDA, Department of Agriculture
Don F. Manns
447-3037

VA, Veterans Administration
Dean A. Tilcomb
389-2411

GSA Contact

The **Consolidated List** is compiled and distributed by the office of Acquisition Policy, U.S. General Services Administration. Inquiries concerning the **List** should be addressed to:

Mr. Richard H. Hopf, III, Director
Office of GSA Acquisition Policy and Regulations (VP)
U.S. General Services Administration
Washington, DC 20405

Attention: Mrs. Juan L. Smith
FTS/(202) 523-4873

Cause and Treatment Codes:

A. Cause: Debarment by an agency pursuant to following the causes: (a) conviction of or civil judgment for fraud, violation of antitrust laws, embezzlement, theft, forgery, bribery, false statements, or other offense indicating lack of business integrity; (b) violation of the terms of a Government contract, such as a willful failure to perform in accordance with its terms or a history of failure to perform; or (c) any other cause of a serious and compelling nature affecting responsibility.

Treatment: Contractors are excluded from receiving contracts, and agencies shall not solicit offers from, award contracts to, renew or otherwise extend the duration of current contracts, or consent to subcontracts with these contractors, unless the acquiring agency's head or a designee determines that there is a compelling reason for such action. Debarments are for a specified term as determined by the debarring agency and as indicated in the listing.

Note: Debarments and suspensions effected after August 30, 1982, in accordance with the policies and procedures set forth in OFPP Policy Letter 82-1, are effective throughout the Executive Branch. Debarments and suspensions effected prior to that date are listed with an asterisk appearing before the listed party's name and are generally effective only in the agency which took the action. Such listings are for information purposes only, but should be considered by contracting officials as reflecting acts or circumstances which may have a bearing on the contractor's responsibility, and which may serve as a basis for debarment or suspension of the contractor by another agency.

For DOD Users: Debarment and suspension actions by any DOD component (e.g., DLA, Army, Navy, Air Force) are effective throughout DOD whether or not preceded by an asterisk. Special rules govern whether non-DOD debarments or suspensions (Codes A or B) are effective within DOD: debarments and suspensions imposed after November 30, 1981, by non-DOD agencies are effective within DOD, while those imposed on or before that date are not.

Each Code A debarment or Code B suspension action on the list that was taken before August 30, 1982, is preceded by an asterisk. Because none of these entries carries an effective date, in instances where an action is imposed by a non-DOD agency, it will be necessary for DOD users to contact the action agency to determine when the action was imposed. If the action was imposed after November 30, 1981, the action is effective within DOD; if it was imposed

on or before November 30, 1981, it is not effective within DOD, but is for information purposes only.

DOD users should consult counsel for advice prior to taking a procurement action with respect to a contractor that has been debarred or suspended by a non-DOD agency if doubt exists whether such action is effective within DOD.

B. Cause: Suspension by an agency pending completion of investigation or legal proceedings pursuant to FPR 1-1.6 or DAR 1-6 and based on (a) an indictment for or adequate evidence of the commission of fraud, antitrust violations, embezzlement, theft, forgery, bribery, false statements, or other offense indicating a lack of business integrity; or (b) adequate evidence of any other cause of a serious and compelling nature.

Treatment: Same as for Code A. Suspensions are temporary actions and the period of the suspension is indefinite. Therefore, no termination date will be listed.

C. Cause: Debarred by the Comptroller General for violation of the Davis-Bacon Act (40 U.S.C. 276a-2(a)).

Treatment: Offers shall not be solicited from, nor contracts be awarded to, the listed contractor or any firm, corporation, partnership, or association in which the contractor has an interest. Debarment is for a three-year period to terminate on the date shown.

D. Cause: Debarred by the Secretary of Labor for violation of the Walsh-Healey Public Contracts Act (41 U.S.C. 37) or the Service Contract Act (41 U.S.C. 354).

Treatment: Offers shall not be solicited from, nor contracts be awarded to, the listed contractor or any firm, corporation, partnership, or association in which the contractor has a controlling (WHA) or substantial (SCA) interest. Debarment is for a three-year period to terminate on the date shown.

E. Cause: Debarred by any agency for violation of the Buy American Act (41 U.S.C. 101(b)).

Treatment: Offers shall not be solicited from, nor contracts or subcontracts for the construction, alteration, or repair of public buildings or works be awarded to the listed contractor. The contractor may be solicited for offers and awarded contracts for other than construction, alteration, or repair of public buildings or works. Debarment will terminate on the date shown.

F. Cause: Declared ineligible by the Director, Office of Federal Contract Compliance, Department of Labor, in accordance with Executive Order No. 11246 and based on the contractor's failure to satisfy its obligations under the Equal Opportunity Clause of a Federal contract.

Treatment: Contractor is ineligible for the award of any contract or subcontract funded in whole, or in part, with Federal funds from any agency, or for the extension or other modification of existing contracts or subcontracts. Ineligibility is for an indefinite period of time pending contractor's compliance with the executive order and implementing regulations. Therefore, no termination date will be listed.

G. Cause: Declared ineligible by the Secretary of Labor under the authority granted in Reorganization Plan No. 14 of 1950 and based on a violation of one or more of the labor standards provisions of one or more of the following Federal statutes: Contract Work Hours and Safety Standards Act, 40 U.S.C. 327, et seq.; Copeland Act, 40 U.S.C. 275c; Hospital Survey and Construction Act, as amended by the Hospital and Medical Facilities Amendments of 1964, 41 U.S.C. 291(a)(5); United States Housing Act of 1937, as amended, 42 U.S.C. 1416; National Housing Act, 12 U.S.C. 1715c, as amended; Housing Act of 1949, 42 U.S.C. 1459; Housing Act of 1961, 42 U.S.C. 1500c-3; Housing and Urban Development Act of 1965, 42 U.S.C. 3107; Federal-Aid Highway Act of 1956, as amended by the Federal-Aid Highway Act of 1968, 23 U.S.C. 113(a); Federal Water Pollution Control Act, as amended (Sec. 4(g) of the Water Quality Act of 1965, 33 U.S.C. 466e(g)); Postal Reorganization Act, 39 U.S.C. 410 (b)(4)(c); Vocational Education Act of 1963, 20 U.S.C. 35(f); Public Works and Economic Development Act of 1965, 42

U.S.C. 3222; State and Local Fiscal Assistance Act of 1972, 31 U.S.C. 1243(a)(6); Public Health Service Act, 42 U.S.C. 291e; Housing and Community Development Act of 1974, 42 U.S.C. 1437; Local Public Works Capital Development and Investment Act of 1975, 42 U.S.C. 6701, et seq. as amended; Health Professions Educational Assistance Act of 1963 (Sec. 2(a), 77 Stat. 164; 42 U.S.C. 292d(c)(4) and 293a(c)(5), P.L. 88-129); Higher Educational Facilities Act of 1963 (Sec. 403, 77 Stat. 379; 20 U.S.C. 753, P.L. 83-204); Appalachian Regional Development Act of 1965, (Sec. 402, 79 Stat. 21; 40 U.S.C. App. 402); Urban Mass Transportation Act of 1964, 40 U.S.C. 6109.

Treatment: The contractor, or any firm, corporation partnership, or association in which the contractor has a substantial interest is ineligible to receive any contract for work subject to the labor standards provisions of any of the listed statutes. The period of ineligibility determined by the Secretary, may not exceed three (3) years and will terminate on the date shown.

H. Cause: Facility declared ineligible for use in Federal contract by the Administrator of the Environmental Protection Agency pursuant to the Clean Air Act (42 U.S.C. 1857h-4), the Federal Water Pollution Control Act, (33 U.S.C. 1368), and Executive Order 11738. Ineligibility is based on noncompliance with clean air or water standards resulting in a conviction under 113(c)(1) of the Air Act or 309(c) of the Water Act (listed as "H1") or other action (listed as "H2").

Treatment: No agency shall enter into, renew, or extend any non-exempt contract or subcontract, where a listed facility would be used for the contract or subcontract. Ineligibility is for an indefinite period until terminated by the Administrator. Therefore, no termination date will be listed.

A contract or subcontract is exempt from the ineligibility determination if it does not exceed \$100,000, or its purpose is to assist a facility to comply with any law or regulation relating to environmental pollution. However, this exemption does not apply where the facility is listed as "H1". See 40 CFR 15.5 for additional information concerning exemptions.

A-1-Applied

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A

- A-1 Building Contractors, Inc.,** Little Rock, AR (Also Upton, M. L.) C, GAO, 6-15-86.
- A-1 Janitorial Services, Inc.,** Baltimore, MD (Also Wilson, Emael, Sr.; Wilson, Otis) D, DOL, 3-15-85.
- Aadal, Manoutchehr,** 132-77 Metropolitan Avenue, Richmond Hill, NY 11418 (Also Airports Rent-a-Car; Airports Unlimited; American Rent-a-Car) A, GSA, 11-27-84.
- A-Allied American, Inc.,** Union City, CA (Also A-American, Inc.; Yeager, Dorne; Yeager, Eloise; Yeager, Kenneth) D, DOL, 9-1-84.
- A-America, Inc.** (See A-Allied American, Inc.)
- A & B Wiper Supply Company,** 116 Fountain St., Philadelphia, PA 19127 (Also Kanetsky, Joel) A, GSA, 3-26-85.
- A and E Electric Company, Inc.,** Nashville, TN (Also Edwards, Ronald D.; Edwards, Walter J.; Wilson, Jami E.) G, DOL, 2-1-86.
- A. E. Recchia, Inc.** (See Hutton Construction Company, Inc.)
- A & S Cleaning and Maintenance Co., Inc.** 30 Main Street, Ashland, MA 01721 (Also A & S Delivery Service; Alleyne, Colvin T.) A, GSA, 4-4-84.
- A & S Delivery Service** (See A & S Cleaning and Maintenance Co., Inc.)
- AAA Desk Painters, Inc.,** 190 Pajaro Ave., San Francisco, CA 94103 (Also Caparell, Alina; Caparell, Robert E.; J. Coster's Enterprises; Rediformed Sales Company; Speraw, Ervin D.) A, GSA, 10-26-86.
- AAA Machine, Inc.,** 1943 West McNab Rd., Pompano Beach, FL 33060 (See Perkins, Sidney)
- ABC Electronics,** 26 West Nottingham Rd., Dayton, OH 45405 (See Foster, Samuel G.)
- ABC Salvage Corporation,** 65 N Street, SE, Washington, DC 20003 (Also Ulanow, Samuel A.) A, GSA, 10-23-84.
- Abella, Rafael Mayoral,** G.P.O. Box 5045, San Juan, PR 00916, A, VA, 10-25-85.
- Accumul Ltd.** (See Plymale, Larry A.)
- Ackerman, Frederick,** 9843 East Oakridge Drive, St. John, IN 46373, B, ARMY, Indet.
- Action Ambulance Service, Inc.,** Cleveland, OH (Also Gleba, Richard S. Jr.) D, DOL, 7-15-85.
- Adams Commission Company, Inc.,** 723 Perez, San Antonio, TX 73207 (Also Adams, Malcolm H.; Adams Sales Company, Inc.; Turner, Frances G.) A, ARMY, 3-10-84.
- Adams, Malcolm H.,** 307 Grandview, San Antonio, TX 73207 (See Adams Commission Company, Inc.)
- Adams Sales Company, Inc.** (See Adams Commission Company, Inc.)
- Adeco, Inc.,** 12 Kulick Rd., Fairfield, NJ 07006 (Also Hertz, Keith; Wiesen, David L.) A, DLA, 9-16-86.
- Aeroflite Petroleum Corp.,** 1241 Vele Avenue, Bronx, NY 10474 (Also Connolly, Peter J.; Coss, Raymon B.; Hernandez, Reynaldo; KNR Fuel Transportation, Inc.) B, DLA, Indet.
- Airports Rent-a-Car** (See Aadal, Manoutchehr)
- Airports Unlimited** (See Aadal, Manoutchehr)
- A Jiffy, Inc.,** 5448 Wesleyan, Houston, TX 77005 (Also Lunday, Beverly; Williams, Drake A.) B, GPO, Indet.
- Akwa, Phillip W.,** P.O. Box 190, Cocoa Beach, FL 32931 (Also Capital Communications Corp.) A, NASA, 5-31-84.
- Aladdin Building Maintenance, Inc.** (See Gillespie, Charles)
- ALB Industries, Inc.** (See New World Construction, Co.)
- Alexandria Graphics and Reproduction Service** (See Postell, Earl R.)
- Alexandria Printing and Photo Service,** 418 Hume Ave., Alexandria, VA 22301 B, DOE, Indet.
- All Shine Cleaning Company, Inc.** (See Encarnacion, Isaac)
- Allan, George** (See Four Star Electric Supply Co.)
- Allen, Lee G.,** 5879 Green Vallen Circle, Culver City, CA, A, AF, 2-9-84.
- Aleyne, Colvin T.** (See A & S Cleaning and Maintenance Co., Inc.)
- Allied Management Corporation** (See Barnette, Larry D.)
- All Star Restoration, Inc.,** Louisville, KY (Also Miller, David W.; Schnell, Michael B.) G, DOL, 12-1-86.
- Aloisio, Vito,** Westchester, OH (Also Carrier Delivery Service) D, DOL, 11-16-84.
- Alperstein, Albert,** 7500 Penhurst Parkway, Chevy Chase, MD 20015 (Also Alperstein Brothers, Inc.) A, GSA, 9-30-84.
- Alperstein Brothers, Inc.,** 900 7th Street, NW, Washington, DC 20001 (See Alperstein, Albert)
- Alpha Energies, Ltd.** (See Menicucci, Rudolph)
- Alpha Services, Inc.** (See Barnette, Leo J.)
- Alternate Fuel Source Development Corporation** (See Bartlett, John D.)
- AMC Services, Inc.** (See Barnette, Larry D.)
- American Aviation, Inc.,** Peyton, CO, D, DOL, 7-15-85.
- American Coating Specialists,** P.O. Box 5840, Phoenix, AZ 85010 (Also Villaine, Thomas E.; Villaine, Gerald E.) A, AF, 1-7-85.
- American Cooling Tower Company** (See Johnson, Edward R.)
- American Cotton Yarns, Inc.,** 400 Plaza Drive, Westmont, IL 60559 (Also Hurley, Ronald J.; Splinter, Barry W.) B, DLA, Indet.
- American Electric Corporation,** 523 S. Ellis Rd., Jacksonville, FL 32205 (Also American Environmental Protection Corporation; Cobb, Maxwell S.; Hamm, D. Michael; Holloway, Floyd C.) B, DLA, Indet.
- American Environmental Protection Corporation,** P.O. Box 37647, Jacksonville, FL 32205 (See American Electric Corporation)
- American Gear Company, Inc.,** 8141 Monticello Avenue, Skokie, IL 60076 (See Levy Auto Parts of Canada)
- American Machinery Movers, Inc.,** Keyport, NJ (Also Eaton, James; Eaton, Jeannie) D, DOL, 9-1-85.
- American Marine Technology Company, Inc.,** 2675 Commercial, San Diego, CA 92113 (Also Tupper, George Raymond; Wiegand, James Robert, Jr.; Wood, George Bertram Tunney) B, NAVY, Indet.
- American Paving Corporation** (See Kary, Donald)
- American Rent-a-Car** (See Aadal, Manoutchehr)
- American Sanitary Sales and its officers, subsidiaries and divisions, and any and all purchasers, successors, assignees and/or transferees,** Willow Grove, PA, F, DOL, Indet.
- American Waste Removal Company,** Bernalillo, NM (Also Jarvis, Joseph B.) D, DOL, 12-1-84.
- Amherst-Columbia Ambulance Service, Ltd.,** 123 Buckeye Rd., Amherst, NY 14226-2399 (Also Diebold, Lawrence; Diebold, Louis; Diebold, Margaret; Diebold, Ronald) B, VA, Indet.
- Amity Precision Spring Company, Inc.,** 3938 Bridge St., Drexel Hill, PA 19026 (Also Navarro, Antonette; Navarro, Rocco, Jr.; Navarro, Rocco, Sr.) A, DLA, 3-14-86.
- Anchor Business Forms, Inc.,** 2307 Bristol Pike, P.O. Box 116, Bensalem, PA 19020 (Also Rotondo, Raymond F.) B, NASA, Indet.
- Angleton, James** (See Mit-So Enterprises, Inc.)
- Antanosoff, Lubo,** Council Bluffs, IA, G, DOL, 6-1-84.
- Anthony Fastener Specialty Co.,** 1631 Old Virginia Beach Blvd., Virginia Beach, VA 23454 (Also Poindexter, Marshall A.) A, NAVY, 8-10-85.
- Antonick, Chester C.** (See Antonick Drywall Co., Inc.)
- Antonick Drywall Co., Inc.,** Sahuarita, AZ (Also Antonick, Chester C.) G, DOL, 7-15-86.
- Antonsen, Hans I.,** Route 1, Box 1090, Ketchikan, AK, B, USDA, Indet., Limited to Timber Sales Only
- Apollo Building Maintenance,** 18922 Goodvale Road, Canyon Country, CA 91351 (See Gillespie, Charles)
- Applied Energy Conservation Techniques, Ltd.** (See Bueening, Ronald A.)

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Aqua-Blue

Aqua-Aire Products, Inc., 150 Gratiot Blvd., Marysville, MI 48040 (See McLellan, Richard G., Jr.)

Aranowitz, David, Building 8-62, 1275 Bloomfield Avenue, Fairfield, NJ 07003, A, ARMY, 3-10-85.

Arlington Hardware Corporation (See Boston Pneumatics, Inc.)

Arrow Mechanical Corporation (See Johnson, Edward P.)

Asphalt Service Company, The (See Kary, Donald)

Associated Machine and Manufacturing, Inc., 1943 West McLab Rd., Pompano Beach, FL 33060 (See Perkins, Sidney)

Assurance Services and Pacific Refuse and Disposal Co. (See Lee, Warren W.)

Astro-Chem, Inc., PO Box 782, Marietta, GA 30061 (Also Brooke-Lynn, Inc.; Chisholm, Patrick; Hersh, Daniel; Kaufman, Martin; Migdall, Murray D.) B, NAVY, Indef.

Ataucq Enterprises (See Middleton, David, Jr.)

Atkins and West, Inc., c/o Mr. Almond Atkins, Route 1, Campobello, SC 29322 (Also West, Dorothy Atkins) B, AF, Indef.

ATL, Inc. (See Busher, James E.)

Atlantic Construction Company, Inc. (See Busher, James E.)

Atlantic Maintenance Company (See Smith, William)

Atlas Hospital Equipment Company, Inc., 1000 Railroad St., Windsor, PA, 15963 Newark, NJ 07102 (Also Shurkman, Julius) A, DLA, 8-3-85.

Atwood, Blake, Box 177, Damascus, VA, A, DLA, 10-20-85.

Auburn Block Hauling Co., Inc., Pleasantville, NJ (Also Smokowski, Audrey) D, DOL, 8-15-84.

Augustus Construction Company, Inc., Detroit, MI (Also Moss, Augustus L.) G, DOL, 9-1-86.

Ault, William J., Sr., Toronto, OH (Also Star Route Mail Service) D, DOL, 11-18-84.

Austin, Gene, (See Austin Maintenance, Inc.)

Austin, J. G. (See Austin Maintenance, Inc.)

Austin Maintenance, Inc., Santa Monica, CA (Also Austin, Gene; Austin, J.G.) D, DOL, 8-15-84.

*Auto-Torium, Inc., c/o Giant Liquors, Inc., 8 Roxbury Street, Roxbury, MA 02119, Cambridge, MA (Also Brinson, Richard A.) A, GSA, 2-18-84; D, DOL, 7-15-85.

Azzaro, Vincent (See McGusen, Donald)

B

B & B Investments (See Barnette, Larry D.)

*B and E Mail Transport, Inc. (See Harwath, William F.)

BBL Leasing Company, Greensboro, NC (See Blue Bell, Inc.)

*Bailey, Glide, 1036 Carew Tower, Cincinnati, OH (Also Bailey's Marketing to Metamarketing Consultants) A, EPA, 5-11-85.

Bailey, Ronald Glenn, c/o Carnation Braunfelderstrasse 25, 6330 Wetzlar FRG, A, DLA, 4-14-84.

*Bailey's Marketing to Metamarketing Consultants (See Bailey, Glide)

Baker, James L., 920 Marietta Boulevard, NW, Atlanta, GA 30318 A, ARMY, 4-29-86.

*Balk, Harlan M. (See Precision Welding and Stress Relieving, Inc.)

Bar Aviation (See Standard Air Parts, Inc.)

Barboza, Armando (See Fraulob, Don)

Barnette, Larry D., 615 Park St., Jacksonville, FL 32204 (Also AMC Services, Inc.; Allied Management Corporation; B & B Investments; Hamilton Insurance Company Ltd.; Jets Boiler, GmbH; J.E.T.S., Inc.; JETS Services, Inc.; JETS Venture Capital Corporation; JETS Walscherei; LDB Services, Inc.; Leja Leasing, Inc.; Old Dominion Corporation, S.A.; World Management Services, Inc.) B, ARMY, Indef.

Barnette, Leo J., 1500 Holly Ave., Merritt Island, FL 32952 (Also Kraftfahrzeuervermietung und Verwaltungen (KVV) GmbH; Alpha Service, Inc.) B, ARMY, Indef.

Bartlett, John D., 3610 McCart, Fort Worth, TX 76110 (Also Alternate Fuel Source Development Corporation) A, DOE, 9-13-84.

*Battaglia, Joseph, 8 Northcole Drive, Melville, NY 11746 (Also Joseph Morton Company) A, USDA, GSA, 7-31-84.

Bauman, Leroy A. (See Bauman, Roy A. Company, Inc.)

Bauman, Roy A. Company, Inc., Elkridge, MD (Also Bauman, Leroy A.) C, GAO, 4-15-84.

Bay Area Fire Extinguisher Company (See Green, Philip Warren)

Bay Area Fire, Inc. (See Green, Philip Warren)

*Beach Meats, Inc., 401 West Broadway, Myrtle Beach, SC, A, AF, 8-28-84.

Bleasley, Henry T., 6217 Sewells Point Road, Norfolk, VA 23512 (Also LVT Supply Company, Inc.) A, NAVY, 11-8-85.

Bodner, Robert J. (See Randeb, Inc.)

Belco (See Fraulob, Don)

Bell, E. Roy (See R & J Lathing and Plastering, Inc.)

Bell, Joseph S., IV (See Norfolk Packing Company, Inc.)

Bemesderfer, William, 725 Alburger Avenue, Philadelphia, PA 19115 (Also Bucks Aircraft Industries, Inc.) A, DLA, 1-17-86.

*Ben Dee Contractors (See Build Well Construction Company)

*Ben Dee Construction (See Build Well Construction Company)

Benjamin Joel M., Jr., 62 E. Johnson Street, Philadelphia, PA 19144, A, VA, 8-24-86.

Benjamin Mills, Co., Inc., (See Moore, Kenneth E., Jr.)

Bennett, Anthony B., 401 E. 74th Street, New York, NY 10021 (Also Maxton Lock Company) A, GSA, 3-1-86.

Bennett, Donald, 10346 South 75th Court, Palos Hills, IL 60465, B, ARMY, Indef.

Benzenhoefer, Emil J., 512 23d Street, Union City, NJ 07087 (Also Norwalk Metal Craftsmen, Inc.) A, GSA, 5-2-84.

Bergstrom, Thomas P. (See Thornberg Industries, Inc.)

Berkley Tomato and Produce Company, Box 12237, 3616 E. Virginia Beach Blvd., Norfolk, VA 23502 (Also Essid, Jose; Softee, LeRoy) B, DLA, Indef.

*Berry, Edward, Riverview Plaza, Bldg 200, Suite 5, 2604 W 9th, Wichita, KS 67203, A, ARMY, 5-19-85.

Best Industries, Inc., Auburn, CA (Also Chrisman, Rich; Valente, James) G, DOL, 5-2-86.

Bibeau, Maurice (See Rose City Glass Co.)

Blotchin, Robert, 13527 S. Halstead Street, Chicago, IL 60627 (Also Keystone Tube Company) B, ARMY, Indef.

Bishop, Larry L., 308 Evans St., Aurora, IL 60605 (Also Bishop, Paul I.; Premier Painting and Decorating; L and M Contractors; Fox Valley Contractors) A, DOE, 11-14-86.

Bishop, Paul I., 209 Laurel St., Batavia, IL 60510 (See Bishop, Larry L.)

Bittler, Herbert J., 5351 South Westmoreland, Dallas, TX 75237 (Also Georgetown Marketing, Inc.) A, ARMY, 3-1-85.

Blanco, Louis J., 35 Scott Drive, Morganville, NJ 07751, B, NAVY, Indef.

Blue Bell Boots, Nashville, TN (See Blue Bell, Inc.)

Blue Bell Canada, Ltd., Montreal, Canada (See Blue Bell, Inc.)

Blue Bell, Inc., and its principal officers, directors, and direct or beneficial owners, and its divisions and subsidiaries, Greensboro, NC (Also BBL Leasing Company; Blue Bell Boots; Blue Bell Canada, Ltd.; Blue Bell of Lejas, Puerto Rico; Blue Bell of Puerto Rico, Inc.; Blue Bell Services; Brooks Uniform Division; Eagle Pass Development Co.; GIA Manufacture De Rope American; Hicks-Ponder Division; Lady Wrangler Division; Janzen, Inc.; Red Kap, Inc.; Wrangler, Mr. Division; Wrangler Shops of Puerto Rico, Inc.) F, DOL, Indef.

Blue Bell of Lejas, Puerto Rico (See Blue Bell, Inc.)

Blue Bell of Puerto Rico, Inc., Mayaguez, Puerto Rico (See Blue Bell, Inc.)

Blue Bell Services, Greensboro, NC (See Blue Bell, Inc.)

Bob's Champagne

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- *Bob's Cleaners, Mr. (See Build Well Construction Co.)
- *Bob's Cleaning Service (See Build Well Construction Co.)
- Bolt, Fred (See Pacific Hawaii Services, Inc.)
- *Bonin, Joseph, 1809 9th Street, Alameda, CA (Also Ludy, Joseph Bonin) A, GSA, 11-10-84.
- Bonner, Roy S. (See Bonner's Acoustical Contractors, Inc.)
- Bonner's Acoustical Contractors, Inc., Gadsden, AL (Also Bonner, Roy S.; Heston, Brenda) G, DOL, 9-3-85.
- Boschen, Arthur L., Jr. (See New World Construction Co.)
- Boston Area Academic Consortium, Inc. (See Gittac, A. George, Jr.)
- Boston Pneumatics, Inc., 365 Arlington Avenue, Brooklyn, NY 11208 (Also Elkin, Bernard F.; Arlington Hardware Corp.) A, DLA, 9-30-85.
- Bourg, Francis Q., Jr., Houma, LA, D, DOL, 12-1-84.
- Bowles, John F., 1 Tysons Corner Center, McLean, VA 22101 (Also National Cleansing Product Corporation) A, GSA, 9-30-85.
- Boyd, James, Cincinnati, OH, D, DOL, 4-15-84.
- Boyd, Richard (See North American Reporting, Inc.)
- Boyles, Glen H., Gulfport, MI, D, DOL, 4-15-85.
- Bracey, M. R., Construction Co., Ontario, CA (Also Bracey, Milton R., Jr.) C, GAO, 5-15-84.
- Bracey, Milton R., Jr. (See Bracey, M. R., Construction Co.)
- Brashier, Bill T. (See Brashier Roofing, Inc.)
- Brashier Roofing, Inc., Pelham, AL (Also Brashier, Bill T.; Cannon, Lacy) C, DOL, 9-1-85.
- Brauchle, Edward (See Martin Office Machine Company)
- Bregman, Howard, 56 Woodland Rd., Forest Park, Wilkes-Barre, PA 18702, A, DLA, 1-19-85.
- Brewington, Brent, Quincy, CA, D, DOL, 2-1-85.
- *Brinson, Richard A., 410-430 Green Street, Cambridge, MA (See Auto-Torium, Inc.)
- Britain, John M. (See Butt, John William, Jr.)
- Briteway Cleaning Contractors, Inc., P.O. Box 2665, Wilmington, DE 19805 (Also Wolfe, Allen, Jr.; Wolfe, Allen III) A, GSA, 7-29-84.
- *Broco, Inc. (See Brower, Jerome S.)
- Brooke-Lynn, Inc., 1625 Camposula Road, P.O. Box 933, Norfolk, VA 23501 (See Astro-Chem, Inc.)
- Brooks Uniform Division, Dallas, TX (See Blue Bell, Inc.)
- *Brower, J. S., Associates, Inc., 2040 North Towne Ave., Pomona, CA 91767 (See Brower, Jerome S.)
- *Brower, Jerome S., 4055 LaHunta Drive, Claremont, CA (Also Brower, J. S., Associates, Inc.; Broco, Inc.) A, NAVY, 8-29-84.
- Bruggemann, Dale, 560 Turtle Lane, Seguin, TX 78155 (Also Fantastic Services) A, GSA, 4-13-85.
- Bruno, Joseph A., Jr. (See Minute Main Transit, Inc.)
- Bryden, Dennis G. (See Rainman, Lionel)
- Buck, Billy Wayne, 1524 Belaire, Grapevine, TX 76051, A, ARMY, 11-12-85.
- Buckner, Robert, El Cajon, CA (Also Triple B Builders, Inc.) D, DOL, 9-16-85.
- Bucks Aircraft Industries, Inc., 1710 Loretta Turn, Feasterville, PA 19047 (See Bernaderfer, William)
- Buening, R. A., and Associates (See Buening, Ronald A.)
- Buening, R. A., C.P.A., C.E.A. (See Buening, Ronald A.)
- Buening, Ronald A., P.O. Box 1118, or 441 Mariner Drive, Tarpon Springs, FL 33589 (Also Buening, R. A., C.P.A., C.E.A.; Buening, R. A., and Associates; Applied Energy Conservation Techniques, Ltd.) A, DOE, 9-8-84.
- *Build Well Construction Company, 6204 Vorlich Lane, Washington, DC 20016 (Also Kalorame Co.; R & W Contractors; R & W Construction; Bob's Cleaning Service; Mr. Bob's Cleaners; Capital Contractors; Capital Construction Co.; Dart Construction Co.; Ben Dee Construction; Ben Dee Contractors) A, GSA, 4-17-84.
- Burke Enterprises (See Burke, Gerald G.)
- Burke, Gerald G., 3301 Soundview Drive, West, Tacoma, WA 98466 (Also Burke Enterprises; Urban Laboratories, Inc.) A, AF, 7-19-84.
- Burke, Leonard, 143 Cedar Ridge Drive, Glastonbury, CT 06033 (See Stanger, Alfred T.)
- Busher, James E., P.O. Box 22208, Honolulu, HI (Also Atlantic Construction Company, Inc.; ATL, Inc.; Miller, Diane) B, NAVY, Indef.
- Butler, James P., Jr., 30 West Oakland Street, Doylestown, PA 19901 (Also Suburban Industrial Maintenance Company, Inc.) A, GSA, 8-17-85.
- Butler, James R., 5540 N. Ocean Drive, Apt. 1C, Riviera Beach, FL 33404, A, AF, 12-19-85.
- Butt, John William, Jr., 19640 Harper, Grosse Pointe Wt., MI 48236 (Also Britain, John M.; Cleary, Jack; Kemp, Al; Nash, Robert E.; Street, Robert) B, DLA, Indef.
- Butterfield, Joseph, 12806 Bradley Avenue, P.O. Box 4007, Sylmar, CA 91342 (Also Seaman Products of California; Titanium Specialties, Inc.) A, AF, 3-27-84.
- C**
- Cal Industries (See Plymale, Larry A.)
- Cal Investments, Inc. (See Plymale, Larry A.)
- Caldwell, Robert (See J & W Contracting Company, Inc.)
- Calvelage, Julie S., 3824 Wedgfield Avenue, Norfolk, VA 23502, A, NAVY, 5-8-84.
- *Campbell, Ronald Company, 1612 Alexander Blvd., 40 Alexander St., Toronto, Canada (Also Campbell, Ronald R.) B, DLA, Indef.
- *Campbell, Ronald R. (See Campbell, Ronald, Company)
- Campbell, Thomas (See Yellow Coach Lines, Inc.)
- Campbell, William (See Yellow Coach Lines, Inc.)
- Cannon, Lacy (See Brashier, Bill T.)
- Cannon, Larry (See Gillespie, Charles)
- Caperelli, Alma, 135 Bluxome St., San Francisco, CA 94107 (See AAA Desk Painters, Inc.)
- Caperelli, Robert E., 135 Bluxome St., San Francisco, CA 94107 (See AAA Desk Painters, Inc.)
- Capital Communication Corporation, 5215 Ironwood Road, Milwaukee, WI 53217 (See Akwa, Phillip W.)
- *Capital Contractors (See Build Well Construction Co.)
- *Capital Construction Company (See Build Well Construction Co.)
- Carey, Bill R., 3881 Maleta Drive, San Diego, CA 92111, A, NAVY, 12-31-84.
- Carpenter, William W., Sr. (See Universal Decking System, Inc.)
- Carpet Brokers, Inc. (See Thornberg Industries, Inc.)
- Carrier Delivery Service (See Aloisio, Vito)
- Carle, James A., Columbus, OH (Also Carle, James A., Trucking Co.) D, DOL, 4-15-85.
- Carle, James A., Trucking Co. (See Carle, James A.)
- Casletier, D. Dee (See G. C. B. Enterprises, Inc.)
- Cattle King Beef Company, 5590 High St., Denver, CO 80216 (Also Nebraska Beef Processors) B, USDA, Indef.
- Causey, Judge A., 2048 North 10th St., Jacksonville Beach, FL 32250 (Also JAC Management, Inc.) B, ARMY, Indef.
- Cecile Industries (See Miller, John J.)
- *Central Beef Company (See Lang, Arthur)
- *Central Beef Corporation (See Lang, Arthur)
- *Central Electric Time Corp., 303 East Hackberry Drive, Arlington Heights, IL 60004 (Also Joo Chan Lee) A, VA, 4-28-85.
- Century Ambulance Service (See Donovan, Thomas J.)
- *Chambers, Benjamin, Villa Rouge Apartments, 246 Upper Riverdale Rd., Jonesboro, GA 30236 (Also Trans-Continental Enterprises) A, GSA, 11-5-84.
- Champagne, Barbara V. (See Made-Rite Tool Company, Inc.)

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Champagne-Dinkle

Champagne, Lucian J., Jr. (See Made-Rite Tool Company, Inc.)

Chan, James W., 1408 43d Avenue, Sacramento, CA 95819, A, AF, 7-11-85.

Charler Terminal Transport, Inc. (See Post Transport, Inc.)

Chaschin, Ulian, Woodburn, OR, D, DOL, 4-1-84.

Chemical Formulators, Inc., Nitro, WV, H1, EPA, Indef.

Cherokee Indian Development Co., Tahlequah, OK (Also Smith, Quentin) D, DOL, 4-15-85.

Chisholm, Patrick (See Astro-Chem, Inc.)

Chisler, Bob R., Pentress, WV (Also Chisler Brothers General Contractors; Chisler, Dale; Chisler, David; Chisler, John) D, DOL, 5-17-85.

Chisler Brothers General Contractors (See Chisler, Bob R.)

Chisler, Dale (See Chisler, Bob R.)

Chisler, David (See Chisler, Bob R.)

Chisler, John (See Chisler, Bob R.)

Chrisman, Rich (See Best Industries, Inc.)

Cigliano, Anthony J., 2194 Signal Place, San Pedro, CA 90731 (Also Fiesta Del Mar Frozen Food, Inc.; State Fish Co., Inc.) A, DLA, 2-7-86.

*Clizon, Gordon, 6118 Azalea Lane, Dallas, TX, A, ARMY, 5-30-85.

Classy, Gerald, 1 Singingerweg, 6237 Liederbach, Federal Republic of Germany, A, DLA, 6-15-84.

Clean City Janitor Service, Inc., Dayton, OH (Also Daskalakis, Frank; Daskalakis, Thomas) D, DOL, 6-15-84.

Cleary, Jack (See Butt, John William, Jr.)

Clegg, John, Victoria, TX (Also Clegg Mobile Home Service) D, DOL, 4-1-84.

Clegg Mobile Home Service (See Clegg, John)

Clemente, Elie P. (See Westchester Wiping Cloth Corporation)

Clemente, Thomas, 415 Soundview Avenue, Bronx, NY 10461 (See Westchester Wiping Cloth Corporation)

Clements, Richard Barry (See Garrett Enterprises, Inc.)

*Clevenger, Catherine, 12459 Scaggsville Rd., Highland, MD 20777, A, GSA, 4-28-84.

Close, Larry (See Redfield, Jim, Plumbing and Heating, Inc.)

C.M.D., Inc. (See Goldberg, Michael)

Coastal Ben Construction Company, San Antonio, TX (Also Gannaway, T. M.) C, GAO, 10-3-85.

Cobb, Maxwell S. (See American Electric Corporation)

Cogliano, John (See Morningstar, C. & Associates)

Cohen, Jack (See Norfolk Packing Company, Inc.)

Coker Control, Inc., 4099 Harlan St., Emeryville, CA 94608 (Also Coker, Dennis J.) B, NAVY, Indef.

Coker, Dennis J. (See Coker Control, Inc.)

*Cole, Calvin W., 1548 Springhill Rd., McLean, VA 22101 (Also Virginia International Testing Laboratories, Inc.) A, GSA, 10-20-84.

Colton, Daniel (See J & W Contracting Company, Inc.)

*Columbus, Michael (See Schlesselman, Michael)

Colvin, Mace (See Mace Drywall Co., Inc.)

Colwell, Rick (See Yardmaster, Inc.)

Combined Maintenance Company (See Servs Flex, Inc.)

Comex Service Corp., a California Corp. (See Wilkins, Walton B.)

Comex Service Corp., a Panama Corp. (See Wilkins, Walton B.)

Comex Service Corp., a Texas Corp. (See Wilkins, Walton B.)

*Commercial Building Maintenance Co., 90 Grove Street, Paterson, NJ 07503 (See Myers, Richard)

Commercial Building Maintenance Co., Paterson, NJ (Also Mandel, Robert; Meyers, Richard) D, DOL, 7-15-85.

Compact Express Lines (See Dominguez, Albert R.)

Complete Refuse Removal, Inc. (See Fowler, Roy P., Jr.)

*Conner, Robert F. (See LaBar Transportation Corp.)

Connolly, Peter J. (See Aerolite Petroleum Corp.)

Consolidated Cleaning Co., Ft. Walton Beach, FL (See Reid, Russell)

Consolidated Services, Inc., Charleston, SC, D, DOL, 3-15-84.

Cook Building Maintenance Service (See Cook, Lawrence J., Jr.)

Cook, Lawrence J., Jr., San Diego, CA (Also Cook Building Maintenance Service) D, DOL, 4-15-85.

Cooper, Michael (See Ray, Harold)

Cooper Trucking (See Ray, Harold)

Cosmos Engineers, Inc., P.O. Box 34270, Bethesda, MD 20817, A, AF, 3-27-84.

Coss, Raymon B. (See Aerolite Petroleum Corp.)

*Cotton, James B., 3917 Broadway, Kansas City, MO, A, ARMY, 4-28-85.

*Coygen Constructors Company, 406 Youtz Drive, Severna Park, MD (See Prickett, Frederick G.)

Crenshaw Construction Company, Sacramento, CA (Also Crenshaw Lucille; Crenshaw, Russell B.) G, DOL, 9-15-86.

Crenshaw, Lucille (See Crenshaw Construction Company)

Crenshaw, Russell B. (See Crenshaw Construction Company)

Crippen, Larry, Vancouver, WA, D, DOL, 3-16-84.

Curtis, Don (See Petroleum Construction Company)

D

D and L Plumbing and Heating Maintenance Corp., Hollis Hills, NY (Also Lesnick, Morris) G, DOL, 2-1-86.

D & M Gulf Service, Dover, NJ (See D'Auria, James T.)

DEB Supply Company, 3482 Oakcliff Rd., Doraville, GA 30340 (See Eaton, James L.)

*Dai Santo, Nathan J., 1182 Elm Street, P.O. Box 666, Kankakee, IL 60901, A, PS, 11-2-84.

Darsee, John R., MD., 834 Salina Street, Schenectady, NY 12308, A, HHS, 8-22-83.

*Dart Construction Company (See Build Well Construction Company)

Daskalakis, Frank (See Clean City Janitor Service, Inc.)

Daskalakis, Thomas (See Clean City Janitor Service, Inc.)

D'Auria, James T., Dover, NJ (Also D and M Gulf Service) D, DOL, 9-15-84.

*Davis, Jones E., 972 Park Forest Lane, Jacksonville, FL 32211, B, PS, Indef.

Davis, Leonard Henley, Jr., 5044 Westgrove Road, Virginia Beach, VA 23455, A, NAVY, 6-20-86.

Davis, Norman E., Tuskegee, AL (See Dial-A-Maid)

*Davis, Tony E. (See Southeastern Mail Transport, Inc.) A, PS, 9-8-84.

Del Rosari, Juan Ernesto (See Reliable Security Service, Inc.)

Delta Fence and Cleaning Service, Pleasanton, CA (Also Edwards, Jody M.; Horton, Bobbie J.) G, DOL 3-1-86.

DFY Supply, Inc. (See Yoder, Denise)

Dial-A-Maid, Tuskegee, AL (Also Davis, Norman E.) D, DOL, 11-16-84.

*Diebold, Lawrence (See Amherst-Columbia Ambulance Service, Ltd.)

*Diebold, Louis (See Amherst-Columbia Ambulance Service, Ltd.)

*Diebold, Margaret (See Amherst-Columbia Ambulance Service, Ltd.)

*Diebold, Ronald (See Amherst-Columbia Ambulance Service, Ltd.)

Diesel Energy Products, Inc., 7069 Commerce Circle, P.O. Box 1257, Pleasanton, CA 94566, (Also Scott, William; Matthews, E. Joan) A, DLA, 6-25-85.

Dinkle, Raymond E. (See Georgia Waste Systems, Inc.)

Dodge Electric Company, Malden, MA (Also Dodge, Richard) G, DOL, 12-1-86.

Dodge, Richard (See Dodge Electric Company; Perez Electric Corporation)

Dohrmann, Gerald A., 1010 Lootens, Suite 8, San Rafael, CA 94901 (Also Phoenix Sales and Service Corporation) A, AF, 8-18-85.

Dokken, Nora, Tacoma, WA, D, DOL, 5-17-85.

Dominguez, Albert R., Rockford, IL (Also Compact Express Lines) D, DOL, 6-15-85.

Donovan, Thomas J., P.O. Box 36731, Cleveland, OH 44138 (Also Century Ambulance Service) A, VA, 1-26-86.

Doyal, Lynn A., 5543 Eastridge Dr., Sacramento, CA 95842 (Also Sacramento Electronics Repair) A, AF, 8-3-84.

Duffy, James Joseph, 4670 23rd Avenue, Sacramento, CA 95826 (Also Westates Equipment Company) A, AF, 7-29-85.

Dugger, Robert F., Route 1, Box 123, Ashville, AL 35953, A, DOI, 12-3-84.

*Dunlap, Carl B., 1402 River Oaks, Abilene, TX 79605 (Also Powers, Steven; Powers Pump and Electric Co.; Mikkelo, Inc.) A, GSA, 12-13-84.

Dupée, Howard William, Clarksville, TN, St. Louis, MO (Also H & H Janitorial Service) D, DOL, 11-16-84.

E

Eagle Pass Development Co., Eagle Pass, TX (See Blue Bell, Inc.)

Eskin, Harvey, Weir, MS, D, DOI, 5-3-85.

E & P Associates, Inc. (See Postell, Earl R.)

E and R Contracting, 84-657 Upena St., Wailane, HI 96792 (Also Mears, Ronald) A, NAVY, 11-30-86.

Eaton, James (See American Machinery Movers, Inc.)

Eaton, James L., Route 8, P.O. Box 122, Cumming, GA 30310 (Also Schlesinger, Stephen R.; DEB Supply Co.; Falcon Tool Co.; J & M Tools Supply; J. T. Supply Co.; Southeastern Gauge, Ltd.; Southland Tool and Supply; Tools Unlimited, Inc.) A, GSA, DLA, 4-29-85.

Eaton, Jeannie (See American Machinery Movers, Inc.)

Ecolodyne Corporation, Chattanooga, TN (Also Winters, Stephen H.) D, DOL, 4-1-84.

Edwards, Jody M. (See Delta Fence and Cleaning Service)

Edwards, Ronald D. (See A and E Electric Company, Inc.)

Edwards, Walter J. (See A and E Electric Company, Inc.)

Electro-Methods, Inc. (See Stanger, Alfred T.)

Elkin, Bernard P. (See Boston Pneumatics, Inc.)

*Ellen Kaye, Inc. (See Jewel, Harold L.)

Emerson, James K., c/o Offshore Marketing Associates, Gewerbegebiet 3 6500 Mainz, Republic of Germany A, DLA, 5-11-84.

*Emerson Sales and Service, Inc., c/o United States Corporation Company, 306 South State Street, Dover, DE 19007 (See Kleinbart, David J.)

Encarnacion, Isaac, 1408 Rosedale Avenue, Bronx, NY 10472 (Also All Shine Cleaning Company, Inc.) A, GSA, 10-21-84.

Englert, Henry P., Jr., Lafayette, IN (Also Englert Trucking Co.) D, DOL, 5-17-85.

Englert Trucking Co. (See Englert, Henry P., Jr.)

Enviro-Development Company (See Mersereau, John D.)

*E. P. Associates, 41 21st Ave., Hillcrest Heights, MD 20031 (See Plunkett, Elzavan)

Eres, Manuel J. (See Westbrook, Robert R.)

Erllynn Corporation, Turnersville, NJ (Also Labaczewski, Joseph) D, DOL, 11-16-84.

Ernst, Bernard, 625 Pennsylvania Ave., Elizabeth, NJ 07201 (Also Ernst Orthopedics, Inc.) A, VA, 6-12-84.

Ernst Orthopedics, Inc. (See Ernst, Bernard)

Essid, Joe (See Berkley Tomato and Produce Company)

Evans, William I., Sitka, AK, D, DOL, 2-1-85.

Ezell and Associates, P.O. Box 60, Forest Park Station, Dayton, OH 45405 (See Foster, Samuel G.)

Ezell, Clara, 2221 West Pecan Rd., Phoenix, AZ 85041 (See Foster, Samuel G.)

F

Fairway Electric Company (See Menicucci, Rudolph)

Falcon Tool Company, 3482 Oakcliff Rd., Doraville, GA 30340 (See Eaton, James L.)

Fantastic Services (See Brueggemann, Dale)

Feature Ring Company, Inc. and all divisions or subsidiaries (Also Foremost Casting Co.; Gotham Wedding Ring Co., Inc.; Ideal Setting Company) F, DOL, Indef.

*Federal Sales Associates, Inc., 14700 Fireside Drive, Silver Spring, MD 20904 (Also Shear, Leonard) A, ARMY, 6-14-85.

Federal Services, Inc. (See McGueen, Donald)

Ferguson Plastering, Miami, FL (Also Ferguson, Walter T, Sr.) G, DOL, 7-15-84.

Ferguson, Walter T, Sr. (See Ferguson Plastering)

Fiesta Del Mar Frozen Food, Inc. (See Cigliano, Anthony J.)

Fire Detection and Alarm Corp., 34 East Putnam Avenue, Port Chester, NY 10573 (See Price, Robert P.)

Fireguard and Communications, Inc. (See Price, Robert P.)

Fisher, Ethel (See Fisher, Harold R.)

Fisher, Gary, 5142 Balsa Avenue, Suite 105, Huntington Beach, CA 92649, A, AF, 3-30-84.

Fisher, Harold R., Box 829, Murphy, NC 28905 (Also Fisher, Ethel) B, USDA, Indef.

Fisher, Mac H., Construction Company, Inc. (See Hurwitz, Irving)

Fisher Mechanics, Inc., formerly Mac H. Fisher Construction Company, Inc. (See Hurwitz, Irving)

Flanagan, Joseph (See Tiffany Food Service, Inc.)

Floorcovering Services (See Price, Larry)

Ford, John H. (See Metro Services, Inc.)

Foremost Casting Company (See Feature Ring Company, Inc.)

Formica, Vito (See Roman Corporation, The)

Ft. Ord Cleaning Service (See Walters, King)

Foster, Daisy (See Foster, Samuel G.)

Foster, Samuel G., 1628 Philadelphia Dr., Dayton, OH 45406 (Also ABC Electronics; Ezell and Associates; Ezell, Clara; Foster, Daisy; Harris, Anna) A, DLA, 8-25-86.

*Four Star Electric Supply Corp., c/o George Allan, 2223 13th Street, Elkhart, IN 46514 (Also Allan, George; Four Star Electronic Supply; Pruitt, Charles; Purchasing Services, Inc.) A, DLA, 6-24-84.

*Four Star Electronic Supply, c/o Charles Pruitt, 52310 Winding Waters South, Elkhart, IN 46514 (See Four Star Electric Supply Corp.)

Fowler, A. J. Corporation, Box 227, LeCompte, LA (Also Fowler, Andrew J.; Fowler, Edgar E.) B, ARMY, Indef.

Fowler, Andrew J. (See Fowler, A. J., Corporation)

Fowler, Edgar E., 300 Holiday Circle, Pinaville, LA 71360 (See Fowler, A. J., Corporation)

Fowler, Roy P., Jr., Smyrna Hill Drive, SE, Smyrna, GA 30080 (Also Complete Refuse Removal, Inc.) A, ARMY, 1-17-86.

Fox Valley Contractors (See Bishop, Larry L.)

Frascona, Charles (See Post Transport, Inc.)

Frascona, John (See Post Transport, Inc.)

Fraulob, Don, Sacramento, CA (Also Barboz, Armando; BELCO) D, DOL, 2-18-85.

*Frederick, Norman (See Lyndie D. Taylor, Inc.)

Freeman, Anton G. (See Worcester County Refrigeration, Inc.)

*Fremer Contracting Company (See Prickett, Frederick G.)

Fullerton, Wray S., McDonald, PA (Also McDonald Express & Transfer Co.) D, DOL, 8-15-84.

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Furman-Hawker

*Furman, Dr. Jerome (See Worldwide Sales, Inc.)

G

G. C. B. Enterprises, Inc., Encinitas, CA (Also Castellar, D. Dee) D, DOL, 3-18-84.

G and G Contractor (See Gatewood, Robert Lee)

*Galbraith, Marie Rose, P.O. Box 56, Cheboygan, MI, A, PS, 4-6-86.

Galbreath, Willard (See Portsmouth Hardware and Building Supply Company, Inc.)

Galindo, Gaspar (See La Salle Roofing Company)

Gallo, C. Thomas, 47 Pitt Avenue, Staten Island, NY 10314, B, NAVY, Indef.

Gannaway, T. M. (See Coastal Ben Construction Company)

Garrett Enterprises, Inc., Box 6843, 2522 W. Huntingdon St., Philadelphia, PA 19132 (Also Garrett, John A.; Clements, Richard Barry) D, DOL, 3-1-85; A, NAVY, 2-4-86.

Garrett, John A. (See Garrett Enterprises, Inc.)

Gasperik, Michael T., 37 Bryden Place, Ridgewood, NY 07450 (See Medical Devices of Fall River, Inc.)

Gatewood Construction (See Gatewood, Robert Lee)

Gatewood Contractor (See Gatewood, Robert Lee)

Gatewood, Robert Lee, P.O. Box 4863, Memphis, TN 38104 (Also Gatewood Construction; Gatewood Contractor; Gatewood, Romele Levele; Good and Good Contractor; G and G Contractor) A, NAVY, 11-9-85.

Gatewood, Romele Levele (See Gatewood, Robert Lee)

Gaunt, Gerald (See Porahia Alexander of America)

GEMCO Construction, Inc. (See Simpson, Jimmy Wayne)

Generelli, James (See Worcester County Refrigeration, Inc.)

Georgetown Marketing, Inc., (See Bitter, Herbert J.)

Georgia Waste Systems, Inc., 1571 Burke Drive, Lake City, GA 30054 (Also Dinkle, Raymond E.) A, ARMY, 2-23-86.

Geyer, H. M. (See Geyer, Hubert M.)

Geyer, Hubert M., Riverside, CA (Also Geyer, H. M.; Riverside Security Patrol and Alarm Service) D, DOL, 2-1-85.

Gia Manufactura de Ropa, Americana, S. A., Mexico (See Blue Bell, Inc.)

Gibbs, Thomas F., 6618 Hyde Grove Ave., Jacksonville, FL 32210, B, ARMY, Indef.

Gibson, Charles (See Gillespie, Charles)

Giffin, Chester B., P.O. Box 1293, Huntsville, AL 35807 (Also J. G. Enterprises; Mil-Pack Company, Inc.) A, GSA, 9-25-86.

Gillespie, Charles, 13120 South Gramercy Place, Gardena, CA 90249 (Also Apollo Building Maintenance; Gibson, Charles; Imperial Building Maintenance; Sellers, Edward; Cannon, Larry; Nationwide Building Maintenance) A, GSA, 12-20-84.

Ginsberg, Alysne (See H. Ginsberg and Daughter Construction, Inc.)

Ginsberg, Harry (See H. Ginsberg and Daughter Construction, Inc.)

Gitter, A. George, Dr., 204 Pleasant Street, Brookline, MA 02146 (Also Boston Area Academic Consortium, Inc.) A, ARMY, 5-4-86.

Glassman, Ralph (See Smith, Jerry, Inc.)

Gleba, Richard S., Jr. (See Action Ambulance Service, Inc.)

*Gluckman, Morton (See MG Sales Corporation)

*Godbolt, Bernice, 3101 Euclid Ave., Cleveland, OH 44115 (Also NISSI Corp.) A, GSA 3-22-84.

Goeringer, Edward T., 14715 Woodlawn, Dolton, IL 60419, B, ARMY, Indef.

Goldberg, Michael, 5 East 6th Street, Kansas City, MO 64106 (Also C.M.D., Inc.; Kansas City Continental Corporation; New York Central Corporation) A, ARMY, 4-2-85.

Golden Sun Manufacturing, registered trade name of the Trading Corporation of America (See Moffo, Jerry)

Good and Good Contractor (See Gatewood, Robert Lee)

Good, Gary (See Grove Reforesters)

Good, Gary (See Timberline Reforestation, Inc.)

Goodfield and Goodfield Company (See Goodfield, Edmund D., Jr.)

Goodfield, Edmund D., Jr., 1075 Blair Ave., Scranton, PA 18508 (Also Goodfield and Goodfield Company) B, ARMY, Indef.

Good, John (See Grove Reforesters)

Good, Joyce (See Grove Reforesters)

Gotham Wedding Ring Company, Inc. (See Feature Ring Company, Inc.)

*Gray Gryphon Associates (See Ocean Market Consultants)

Great Plains Cleaners, Inc. (See Newton, Bobbie Ray)

Great Plains Laundry and Dry Cleaners, Inc. (See Newton, Bobbie Ray)

Green, Phillip Warren, 1752 Rummel Blvd., San Pablo, CA 94564 (Also Bay Area Fire Extinguisher Company; Bay Area Fire, Inc.) B, NAVY, Indef.

Greenen, Terrance C. (See Pacific Hawaii Services, Inc.)

Griffin, Sadie, Beaumont, TX, D, GAO, 7-15-85.

Griffith, Robert E., Ironton, OH (Also Griffith, Robert E. Enterprises) D, DOL, 9-15-84.

Griffith, Robert E. Enterprises (See Griffith, Robert E.)

Grove Reforesters, Cottage Grove, OR; Curtin, OR; Eugene, OR (Also Good, Gary; Good, John; Good, Joyce) D, DOL, 9-15-84.

*Guadagna, Phillip J., 525 Oldham Street, Baltimore, MD 21224 (See Martin, Kenneth Clayton) A, GSA 9-28-84.

Guttenberg, William, 100 Orchard Street, Hackensack, NJ 07601 (Also Wilco Electric Company) A, NAVY, 5-27-86.

H

Haley, Charles R. (See Haley Electric Company, Inc.)

Haley Electric Company, Inc., Corpus Christi, TX (Also Haley, Charles R.; Haley, Kenneth A.; Haley, Kenneth Paul; Haley, Kimela J.) G, DOL, 9-1-86.

Haley, Kenneth A. (See Haley Electric Company, Inc.)

Haley, Kenneth Paul (See Haley Electric Company, Inc.)

Haley, Kimela J. (See Haley Electric Company, Inc.)

Hall, Bobby J. (See Jackson Paint Services, Inc.)

Hall, Shirley, c/o Dunham and Smith Agency GmbH, Bonhoefferstrasse 16A, 6454 Bruchkoebel, Federal Republic of Germany, B, DLA, Indef.

Hamilton Insurance Company, Ltd. (See Barnett, Larry D.)

Hamm, D. Michael (See American Electric Corporation)

H & H Janitorial Service (See Dupee, Howard William)

Handy, Russell H., U.S. Mail Contractor, Springfield, IL, D, DOL, 6-1-85.

Hansen, James W. (See Superior Construction Company)

Harmon, Grace M., Kansas City, MO, D, DOL, 6-15-84.

Harris, Anna, 5207 Tucson Dr., Dayton, OH 45418 (See Foster, Samuel G.)

Harrison, JapLee, Jr., Stockton, CA, D, DOL, 11-1-86.

Harrison, Ronald E., 1720 Robin Drive, Franklin Commons, Bensalem, PA 19020, A, DLA, 1-19-86.

Hartley, G. Cecil (See Treasure Isle, Inc.)

*Harwath, William F., 5890 Patriots Way, East Lansing, MI 48823 (Also B and E Mail Transport, Inc.) B, PS, Indef.

*Hatcher, Austin, Jr., 3181 Patterson Street, Greensboro, NC (Also Hatcher, M. L. Pickup and Delivery Service, Inc.) B, PS, Indef.

*Hatcher, M. L. Pickup and Delivery Service, Inc. (See Hatcher, Austin, Jr.)

Hatler, Richard, 8900 Gold Leaf Way, Sacramento, CA 95826 (Also Professional Moving Service) B, AF, Indef.

Haulaway, Inc., 1419 Adams St., Hoboken, NJ 07030 (Also Scigoza, Joseph) A, NAVY, 8-30-86.

Hawker Industries, Inc., Ft. Lauderdale, FL (Also Wentworth, George E., Jr.) G, DOL, 5-15-84.

Heaton-Johnson

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- Heaton, Brenda (See Bonner's Acoustical Contractors, Inc.)
- Hemispheric Aerospace Limited, Inc. (See Stanger, Alfred T.)
- Hernandez, Reynaldo (See Aerolite Petroleum Corp.)
- *Herschorn, Morton (See Surf Hunter Electric Company, Inc.)
- Hersh, Daniel, 1671 Dylan Rd., Virginia Beach, VA 23464 (See Astro-Chem, Inc.) A, NAVY, 8-23-84.
- Hertz, Keith (See Adec, Inc.)
- Hertzler, Bruce (See Hertzler Enterprises, Inc.)
- Hertzler, Donna W. (See Hertzler Enterprises, Inc.)
- Hertzler Enterprises, Inc., Albuquerque, NM (Also Hertzler, Bruce; Hertzler, Donna W.; Sandia Die and Cartridge Company) D, DOL, 1-16-87.
- Hease Envelope Company, Dallas TX, F, DOL, Indef.
- H. Ginsberg and Daughter Construction, Inc., 3638 B South Larado St., Aurora, CO 80012 (Also Ginsberg, Alayne; Ginsberg, Harry) A, GSA, 11-28-85.
- Hicks-Ponder Division, El Paso, TX (See Blue Bell, Inc.)
- Hiller, David W. (See All Star Restoration, Inc.)
- Hoestery, Ernest, 531 Fairway Dr., Somerset, MA 02720 A, DLA, 1-31-86.
- Hoestery, Phyllis, 531 Fairway Dr., Somerset, MA 02730 (See Medical Devices of Fall River, Inc.)
- Holstetter, David G. (See Parkline, Co.)
- Holcomb-Cowden Plumbing and Heating, Inc., Tarrant, AL (Also Holcomb Plumbing Company, Inc.; Holcomb, Raymond) G, DOL, 12-1-86.
- Holcomb Plumbing Company, Inc. (See Holcomb-Cowden Plumbing and Heating, Inc.)
- Holcomb, Raymond (See Holcomb-Cowden Plumbing and Heating, Inc.)
- Holloway, Floyd C., c/o Holloway's Waste Oil Service, 1549 Undine Ave., Jacksonville, FL 32205 (See American Electric Corporation)
- Holmes, H. Wilber, 510 Cumberland Ave., Portland, MA 04104 A, NAVY, 6-12-86.
- Holmes, Jimmy Dale (See Jackson Paint Services, Inc.)
- Horowitz, Richard I., 130 Gulfstream Road, North Palm Beach, FL 33408 (See Stanger, Alfred T.)
- Horton, Bobbie J. (See Delta Fence and Cleaning Service)
- Howell Electric, Fontana, CA (Also Howell, Richard A.) C, GAO, 12-1-86.
- Howell, Richard A. (See Howell Electric)
- H. Saville and Sons, Inc., 3606 Acorn Ave., Newport News, VA (Also Peninsula Produce Company; Wright, Robert N.) B, DLA, Indef.
- Huffman, Raymond C., 6980 Pin Oak Drive, Pinkerinton, OH 43147, A, DLA, 10-21-86.
- Hughes, Sandra Mariene, Sacramento, CA, D, DOL, 4-1-84.
- Hult, Jonathan, Montgomery, CA, D, DOL, 2-1-85.
- *Hunter, William, 6334 Forest Knoll Trail, Dallas, TX, A, DLA, 10-16-84.
- Huntingdon Apparel Manufacturing Company, R.D. 4, Box 188A Fairgrounds Road, Huntingdon, PA 16652, A, DLA, 1-19-86.
- Hurley, Ronald J. (See American Cotton Yarns, Inc.)
- Hurwitz, Helen (See Hurwitz, Irving)
- Hurwitz, Irving, 10777 West Sample Road, Box 211 Coral Springs, FL 33065 (Also Hurwitz, Helen; Marco, Inc.; Fisher Mechanics, Inc., formerly Mac H. Fisher Construction Company, Inc.) A, GSA, 7-7-86.
- Hutton Construction Company, Inc., West Orange, NJ (Also A. E. Recchia, Inc.; Recchia, Anthony E.) G, DOL, 7-1-85.
- Hydro-Engineering Company, 10355 Vacco Street, South El Monte, CA 91733 (See Squires, Rucker E.)
- I
- Ideal Setting Company (See Feature Ring Company, Inc.)
- Imperial Building Maintenance, 18922 Goodvale Road, Canyon Country, CA 91351 (See Gillespie, Charles)
- Independent Parts Co., 4616 Fishering Drive, Bakersfield, CA 93309 (Also Langille, Russell) A, DLA, 12-28-85.
- Independent Product Services (See Lang, Elijah)
- Independent Products Services (See Lang, Elijah)
- *Information Transfer Service (See Ocean Market Consultants, Inc.)
- Intercontinental Construction, Inc., Seattle, WA (Also Krushelnisky, Geraldine; Krushelnisky, Dianne; Krushelnisky, Sandra) C, GAO, 4-15-84.
- *Intercontinental Marketing Corp., 6701 Loisdale Road, Springfield, VA 22150 (Also Nitti, Victor) A, ARMY, 7-1-85.
- Intrepid Detective Agency (See Sweda, John W.)
- Inzero, Pasquale (See Inzero, P. J., Plumbing and Heating, Inc.)
- Inzero, P. J., Plumbing and Heating, Inc., Hamden, CT (Also Inzero, Pasquale) G, DOL, 11-15-86.
- Issacher Manufacturing Co., Inc. (See Moore, Kenneth E., Jr.)
- J
- J & M Tools Supply, 3482 Oakcliff Road, Doraville, GA 30340 (See Eaton, James L.)
- J & W Contracting Company, Inc., Lanham, MD (Also Caldwell, Robert; Colton, Daniel) C, GAO, 5-2-86.
- J. T. Supply Company, 3482 Oakcliff Road, Doraville, GA 30340 (See Eaton, James L.)
- JAC Management, Inc. (See Causey, Judge A.)
- Jackson Paint Services, Inc., Canton, MS (Also Hall, Bobby J.; Holmes, Jimmy Dale) G, DOL, 5-2-86.
- James Heating and Air Conditioning, Victorville, CA (Also James, John; James, Sandra) G, DOL, 11-1-86.
- James, John (See James Heating and Air Conditioning)
- James, Sandra (See James Heating and Air Conditioning)
- Jamison Construction Company, Portland, OR (Also Jamison, Stanley) C, GAO, 7-15-86.
- Jamison, Stanley (See Jamison Construction Company)
- Jantzen, Inc., Portland OR (See Blue Bell, Inc.)
- Jarvis, Joseph B. (See American Waste Removal Company)
- J. Coster's Enterprises, 135 Bluxome St., San Francisco, CA 94107 (See AAA Desk Painters, Inc.)
- Jeffries, James B. (See Jeffries, James B., Construction Co.)
- Jeffries, James B., Construction Co., Paradise, AZ (Also Jeffries, James B.) G, DOL, 7-15-86.
- Jet Data, Inc., 117 Hartford, Tolland, CT 06084 (See Stanger, Alfred T.)
- Jeis Boiler, GmbH (See Barnett, Larry D.)
- J.E.T.S., Inc. (See Barnett, Larry D.)
- JETS Service, Inc. (See Barnett, Larry D.)
- JETS Venture Capital Corporation (See Barnett, Larry D.)
- JETS Waescherei (See Barnett, Larry D.)
- *Jewel, Harold L., Suite 1, 11250 Roger Bacon Dr., Reston, VA 22090 (Also Ellen Kaye, Inc.) A, GSA 11-19-84.
- J. G. Enterprises (See Giffin, Chester B.)
- Jim's Stripping and Waxing Service (See Lamp Corporation)
- Jim's Janitorial Service (See Walters, King)
- Johnson, Edward, P.O. Box 1887, Upland, CA 91786 (Also Johnson Tank and Tower Company; Arrow Mechanical Corporation; American Cooling Tower Company) A, GSA, 4-21-85.
- Johnson, Jimmie L. (See Westside Landscaping)
- Johnson, Larry L. (See Johnson, Larry L., Inc.)
- Johnson, Larry L., Inc., Malia, OH (Also Johnson, Larry L.) G, DOL, 7-1-85.
- Johnson, Neal R. (See Neely Nob Construction)
- Johnson, Ralph (See Lance Security Patrol Agency, Inc.)
- *Johnson, R. C. Trucking Company, Inc. (See Johnson, Robert C.)

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Johnson-Lipschultz

- *Johnson, Robert C., 54 Vernon Avenue, Mt. Vernon, NY (Also Johnson, R. C. Trucking Company, Inc.) A, PS, 1-10-85.
- Johnson, Robert C. (See Johnson, Robert C. Trucking Company)
- Johnson, Robert C. Trucking Co. (Also Johnson, Robert C.) D, DOL, 6-1-85.
- Johnson Tank and Tower Company (See Johnson, Edward P.)
- *Joo Chan Lee (See Central Electric Time Corp.)
- *Joseph Morton Company, Inc. (See Battaglia, Joseph)
- Judd, Charles, Aalinas, CA (Also J C Services) D, DOL, 12-1-84.
- Just Right Cleaners (See Smiley, Eugene)
- K**
- *Kalorama Company (See Build Well Construction Company)
- *Kanevsky, Joel, 1450 Schina Drive, Ambler, PA 19002 (See A & B Wiper Supply Company)
- Kansas City Continental Corporation (See Goldberg, Michael)
- Kary Asphalt, Inc. (See Kary, Donald)
- Kary, Donald, 1836 Chesapeake Ave., Baltimore, MD 21226 (Also American Paving Corporation; Asphalt Service Company, The; Kary Asphalt, Inc.) A, ARMY, 7-14-84.
- Kasco Metal Products, 4 Whale Square, Brooklyn, NY 11232 (Also Kaser, William C.; Repter, Milton) B, DLA, Indef.
- Kaser, William C. (See Kasco Metal Products)
- Kaufman, Martin (See Astro-Chem, Inc.)
- Kemp, Al (See Butt, John William, Jr.)
- *Kenny, John E., 7332 Caminito Carlotta, San Diego, CA 92120 (See Ocean Market Consultants, Inc.)
- Keystone Tube Company (See Bloch, Robert)
- *Kirsch, Harry R. (See Luciano, Salvatore P.)
- *Kleinbart, David J., 6010 Edsall Rd., Apt 804, Alexandria, VA 22304 (Also Kleinbart, David Jr., Inc.; Emerson Sales and Service, Inc.) A, ARMY, 5-20-85.
- *Kleinbart, David J., Inc. (See Kleinbart, David J.)
- *Kloos, Richard A., 7945 Ranch Fanita Dr., Santee, CA 92071, A, NAVY, 7-22-85.
- Kluznik, Kurt (See Yardmaster, Inc.)
- *Knox, Barry (See Shirbar Industries)
- KNR Fuel Transportation, Inc. (See Aerolite Petroleum Corp.)
- Kornblith, Roy J., c/o Gerald B. Milin, 140 South Dearborn St., Chicago, IL 60603 A, DLA, 10-14-85.
- Kovacs Automotive (See Kovacs, Elemer)
- Kovacs, Elemer, Spokane, WA (See Kovacs Automotive) D, DOL, 3-1-85.
- Kraftfahrzeugvermietungs- und Verwaltungen (KVV) GmbH (See Barnett, Leo J.)
- Krushelnisky, Dianne (See Intercontinental Construction, Inc.)
- Krushelnisky, Geraldine (See Intercontinental Construction, Inc.)
- Krushelnisky, Sandra (See Intercontinental Construction, Inc.)
- Kumita, John (See Stanger, Alfred T.)
- L**
- L and M Contractors (See Bishop, Larry L.)
- LVT Supply Company, Inc. (See Beasley, Henry T.)
- *Lab Louis F., 5451 El Camillo Drive., San Diego, CA 92110, A, NAVY, 5-2-84.
- Labaczewski, Joseph (See Erlynn Corporation)
- *LaBar Enterprises, Inc. (See LaBar Transportation Corp.)
- *LaBar, James (See LaBar Transportation Corp.)
- *LaBar Transportation Corp., P.O. Box 331, Berwick, PA (Also LaBar Enterprises, Inc.; LaBar, James; Romanowski, Donald J.; Conner, Robert F.) A, PS, 3-12-84.
- Lady Fair Inc. (See Ullenberg, Ronald T.)
- Lady Wrangler Division, Greensboro, NC (See Blue Bell, Inc.)
- Lafayette Janitorial Corp., San Francisco, CA, DOL, 5-17-85.
- Lafayette Janitorial Services (See Sims, Charles C.)
- LaFella, Alfred (See La Salle Roofing Company)
- LaGrange Painting, Barberon, OH (Also Randles, Charles W) G, DOL, 6-1-86.
- *Laird, Betty Ruth, 4218 Oakwood Avenue, Huntville, AL (Also Laird Enterprises) A, ARMY, 6-10-85.
- *Laird Enterprises (See Laird, Betty Ruth)
- *Lake Forest Janitorial (See Latimer, John H.)
- Lambert, Pat M. (See Standard Air Parts, Inc.)
- Lambert, Raymond S. (See Standard Air Parts, Inc.)
- Lambert, Robert D. (See Standard Air Parts, Inc.)
- Lambert, Rose (See Standard Air Parts, Inc.)
- Lamm, H. Industries, Inc., Fort Lauderdale, FL (Also Lamm, Helmut) D, DOL, 5-1-84.
- Lamm, Helmut (See Lamm, H. Industries, Inc.)
- Lance Security Patrol Agency Inc., Bronx, NY (Also Johnson, Ralph) D, DOL, 7-1-84.
- *Lang, Arthur, 123 Highland Ave., Needham, MA 02192 (Also Central Beef Corporation; Central Beef Company) A, DLA, 5-8-84.
- Lang, Elijah, Anchorage, AK (Also Independent Product Services; Independent Products Services) D, DOL, 3-1-85.
- Langello, Charles, 916 Lees Mill Rd., College Park, GA 30337 A, ARMY, 1-17-85.
- Langille, Russell (See Independent Parts Co.)
- La Salle Roofing Company, National City, CA (Also Galindo, Gaspar; LaFella, Alfred) C, GAO, 10-15-85.
- *Latimer, John H., 23001 Laurel Grove, El Toro, CA 92630 (Also Lake Forest Janitorial) A, GSA, 11-14-84.
- *Latson Auto Body and Painting Company (See Latson, Gilbert)
- *Latson, Gilbert, 16 O Street, NE, Washington DC 20002 (Also Latson Auto Body and Painting Company) A, GSA, 1-2-85.
- Lauber, Joseph (See Wendall and Company, Inc.)
- Lauranzano, Enrico G. (See Metro-Industrial Security Agency, Inc.)
- Lauranzano, Joan F. (See Metro Industrial Security Agency, Inc.)
- Lauranzano, Natalie R. (See Metro Industrial Security Agency, Inc.)
- Lawrence, Richard, Inc. (See Weinstein, Larry)
- Layman, Donald R., D, DOL, 4-15-84.
- LDB Services, Inc. (See Barnett, Larry D.)
- Leahy, John (See Menicucci, Rudolph)
- Lee Industries (See Vanscore, Lee)
- Lee, Warren W., Honolulu, HI (Also Assurance Services and Pacific Refuse and Disposal Co.) D, DOL, 6-15-84.
- Leja Leasing, Inc. (See Barnett, Larry D.)
- Lesnick, Morris (See D and L Plumbing and Heating Maintenance Corp.)
- Levy Auto Parts, Inc., Dupont Circle Bldg., 1246 Connecticut Avenue, NW, Washington, DC 20036 (See Levy Auto Parts of Canada)
- Levy Auto Parts of Canada, 1400 Weston Road, Toronto, Ontario, Canada M6M4S7 (Also American Gear Company, Inc.; Levy, Morris P.; Raskin, Al; Levy, Benjamin; Levy Auto Parts, Inc.) B, DLA, Indef.
- Levy, Benjamin (See Levy Auto Parts of Canada)
- Levy, Morris P. (See Levy Auto Parts of Canada)
- Lewkowicz, Michael (See MBS Maintenance, Inc.)
- Line Electric Company (See Menicucci, Rudolph)
- Lipschultz, Joel, 411 Natalie Lane, Warminster, PA 18974 (Also Precision Fasteners, Inc.) A, DLA, 1-17-85.

Luciano-Moffo

- *Luciano, Salvatore P., 50 Moulton Street, Cambridge, MA 02138 (Also Kirach, Harry R.) A, GSA, ARMY, 6-29-84.
- Ludy, Joseph Bonin (See Bonin, Joseph)
- Lumbercraft, Santee, CA (Also Bassel, Martin C.) G, DOL, 11-1-85.
- *Lundey, Beverly (See A Jiffy, Inc.)
- Luzerne Outfitter Manufacturing Corporation, R.D. 1, Route 11, Berwick, PA 18603, A, DLA, 1-19-85.
- Lynch, Nicholas, c/o Dunham and Smith Agency GmbH, Bonhoefferstrasse 16A, 6454 Bruchkoebel, Federal Republic of Germany, B, DLA, Indef.
- *Lyndie D. Taylor, Inc., 328 Laura Street, P.O. box 11262, Wichita, KS 67202 (Also Frederick, Norman) B, PS, Indef.
- M**
- M & M Transport Service, Inc. (See Musgrave, Gordon)
- *M & R Supplies, Inc. (See Schieselman, Michael)
- MBS Maintenance, Inc., Asbury Park, NJ (Also Lewkowicz, Michael) C, GAO 3-1-85.
- *MG Selco Corporation, 301 174th Street, Miami Beach, FL 33160 (Also Gluckman, Morton) A, ARMY 9-10-85.
- Mac's Building Maintenance (See McNeal Companies, Inc.)
- Mac's Drywall Co., Inc., West Baldwin, ME (Also Colvin, Mace) G, DOL, 3-1-85.
- Mack, Frederick D., 808 E. Edna Place, Covina, CA 91723 (See Porahia Alexander of America)
- Macor Sales, Inc. (See Stanger, Alfred T.)
- Made-Rite Tool Company, Inc., 140 Longview St., Longmeadow, MA 01106 (Also Champagne, Lucian J., Jr.; Champagne, Barbara V.; MRT, Inc.) A, ARMY, 3-18-85.
- Madison Avenue Builders, Inc., Troy, NY (Also Morgan, John; Morgan, Everett; Wickham, Harry) G, DOL, 5-15-84.
- Mahone Harrison Construction Company, Inc., Trevoce, PA (Also Scott, William M. H.) C, GAO, 6-19-85.
- Management Development Company, 1818 Westlake Ave., North, Suite 221, Seattle, WA 98109 (Also Martin, James L.; Sarcov; Service Contract Consultants; Service Management Corporation; Severson, Kristine L.) A, GSA, 4-1-85.
- Mandel, Robert (See Commercial Building Maintenance Company)
- M and M Corporation, 1 Mitchell Dr., Manchester, CT 06040 (See Thompson, William C.)
- Maranatha Construction Co., Albuquerque, NM (Also Pisto, Tony) G, DOL, 6-18-85.
- Marco, Inc. (See Hurwitz, Irving)
- Marlo Company, Inc., The (See Moffo, Jerry)
- Marmac Industries, Inc., 2527 Mills Street, Maryville, MI 48040 (See McLellan, Richard G., Jr.)
- Marsala Manufacturing Company (See Moffo, Jerry)
- Martin, James L. (See Management Development Company)
- Martin, Joseph, 9 E. 40th Street, New York, NY 11701 (See Miller, John J.)
- *Martin, Kenneth Clayton, 21-23 North Howard Street, Baltimore, MD 21218 (Also Photo Center, Inc.; Guadagna, Philip J.) A, GSA, 11-7-84.
- Martin Office Machine Company, 7338 Manchester, Maplewood, MO 63143 (Also Brauchle, Edward; Moars, John B.) A, GSA, 3-11-85.
- Mastroianni, John (See Smith, Jerry, Inc.)
- Mastropale, James B. (See Miracle Contractors, Inc.)
- Mathews, E. Joan (See Diesel Energy Products, Inc.)
- Maxton Lock Company (See Bennett, Anthony B.)
- *Mazucca, Michael, 25 Radcliff Drive, New York, NY 10948 (Also Regional Scaffolding and Hoisting Co., Inc.) A, GSA, 11-10-84.
- McCoy, Robert G., 3005 Central Ave., Ceres, CA 95307 (Also McCoy Super Thread, Inc.) B, GSA, Indef.
- McCoy Super Thread, Inc. (See McCoy, Robert G.)
- McDonald Express & Transfer Co. (See Fullerton, Wray S.)
- McGee, Hilary (See Office Cleaners, Inc.)
- McLellan, Richard G., Jr., 243 Gratiot Blvd., Maryville, MI 48040 (Also McLellan, Richard G., III; Aqua-Aire Products, Inc.; Marmac Industries, Inc.) A, DLA, 2-4-85.
- McLellan, Richard G., III, 2527 Oakwood Road, Port Huron, MI 48060 (See McLellan, Richard G., Jr.)
- McNeal Companies, Inc., Gardena, CA (Also Mac's Building Maintenance) D, DOL, 3-16-84.
- McQueen, Donald, 6340 Highland View, Universal, TX 78148 (Also Federal Services, Inc.; Ultra Power Services Company) A, GSA, 12-3-84.
- Meers, John B. (See Martin Office Machine Company)
- Mears, Ronald (See E and R Contracting)
- Medical Devices of Fall River, Inc., 594 Airport Road, Fall River, MA 02720 (Also Gasparik, Michael T.; Hoesterey, Phyllis; Somerset Surgical Instruments Corp.; Surg-Med Corporation; Jurgal World, Inc.) B, DLA, Indef.
- Medi-Dyne, Inc., 3201 Illinois Road, Wilmotte, IL, A, ARMY, 6-23-85.
- Menicucci, Rudolph, 643 North Railway Avenue, Staten Island, NY 10308 (Also Alpha Energies, Ltd.; Fairway Electric Company; Lesky, John; Line Electric Corporation; Raia, Anthony; Raia Heating and Air Conditioning Corporation) B, NAVY, Indef.
- Mento Service Corporation, Sunnyside, CA (Also Sloan, Daniel) D, DOL, 3-2-84.
- Mersereau, John D., San Bernardino, CA (Also Enviro-Development Company) D, DOL, 3-1-85.
- Messina, Michael (Also Messina Painting Company) G, DOL, 5-17-85.
- Messina Painting Company (See Messina, Michael)
- Metro Industrial Security Agency, Inc., Beverly, MA (Also Lauranzano, Natale, R.; Lauranzano, Joan F.; Lauranzano, Enrico G.) D, DOL, 4-15-85.
- Metro Services, Inc., Clearwater, FL (Also Ford, John H.) G, DOL, 3-2-84.
- Meyers, Richard (See Commercial Building Maintenance Company)
- MHC Limited (See Rainman, Lionel)
- Michigan Hardware Company Limited (See Rainman, Lionel)
- *Micro Chem Manufacturing Co., Inc. (See Schieselman, Michael)
- Middleton, David, Jr., Anchorage, AK (Also Alstaciq Enterprises) D, DOL, 2-1-85.
- Migdal, Murray D. (See Astro-Chem, Inc.)
- *Mikelco, Inc., 810 Citizen National Bank Building, P.O. Box 3136, Abilene, TX 79604 (See Dunlap, Carl B.)
- *Millen, Charles W., One Millen Street, Cayce, SC. (Also Millen Moving and Storage Company, Inc.; Millen Enterprises, Inc.) A, ARMY, 3-13-84.
- *Millen Enterprises, Inc. (See Millen, Charles W.)
- *Millen Moving and Storage Co., Inc. (See Millen, Charles W.)
- Miller, Diane (See Bushar, James E.)
- Miller, John J., 10 Ranick Drive South, Amityville, NY 11701 (Also Cacile Industries, Inc.; Martin, Joseph; Related Industries, Inc.) A, DLA, 11-1-85.
- Mills, Roger, 921 Dexter St., Aiken, SC 29801 A, ARMY, 6-16-85.
- Mil-Pack Company, Inc. (See Giffin, Chester B.)
- Minnick, William B., 6945 Nashville Road, Lanham, MD 20706, A, GSA, 2-28-85.
- Minute Man Transit, Inc., Dedham, MA (Also Bruno, Joseph A., Jr.) D, DOL, 6-15-84.
- *Miracle Contractors, Inc., 12817 Middleton Lane, Fairfax, VA 22030 (Also Mastropale, James B.) B, GSA, Indef.
- Mit-So Enterprises, Inc., Miami, FL (Also Angleton, James) C, GAO, 7-1-85.
- *Modern Services, Inc., P.O. Box 9231, Suitland, MD 20023 (See Plunkett, Elzavan U.)
- Moffo, Jerry, 700 Bryden Road, Suite 113, Columbus, OH (Also Golden Sun Manufacturing; Marlo Company, Inc.; The; Marsala Manufacturing Company, Inc.; The; Trading Corporation of America) A, AF, 1-3-86.

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Monick-Pacific

*Monick, George A., Jr., 2840 South Ocean Blvd., Palm Beach, FL 33480, A, GSA, 4-27-84.

Moore, Kenneth E., III (See Moore, Kenneth E., Jr.)

Moore, Kenneth E., Jr., P.O. Box 308, Little Falls, NY 13365 (Also Moore, Kenneth E., III; Issachar Manufacturing Co., Inc.; Reuben Garment International Co., Inc.; Benjamin Mills Co., Inc.; Zebulun Land Co., Inc.; Zebulun Sales Co., Inc.) A, DLA, 4-15-88.

Moore, Larry (See Thornberg Industries, Inc.)

Morgan, Everett (See Madison Avenue Builders, Inc.)

Morgan, John (See Madison Avenue Builders, Inc.)

*Morgan, Stephen (See Schlesselman, Michael)

Morningstar, C. & Associates General Contractors, Inc., Buffalo, NY (Also Coglian, John; Morningstar, Claude L.; Morningstar, Lena) D, DOL, 2-1-88.

Morningstar, Claude L. (See Morningstar, C. & Associates General Contractors, Inc.)

Morningstar, Lena (See Morningstar C. & Associates General Contractors, Inc.)

Morris, E. C., and Sons, Inc., (See Morris, Wayne)

Morris, Wayne, 2711 East Avenue 1, Lancaster, CA 93534 (Also Morris, E. C., and Sons, Inc.) A, AF, 3-31-88.

Moser, J. N. Trucking, Inc., Aurora, IL (Also Moser, William) D, DOL, 4-15-84.

Moser, William (See Moser, J. N. Trucking, Inc.)

Moss, Augustus L. (See Augustus Construction Company, Inc.)

Mount Vernon Wiping Cloth Corporation, 415 Soundview Avenue, Bronx, NY 10461 (See Westchester Wiping Cloth Corporation)

MRT, Inc. (See Made-Rite Tool Company)

Municipal and Industrial Pipe Services, Ltd. (See Wirt, David M.)

Murphy, Richard E., Am Bruckengarten 1, 6300 Frankfurt 50, Federal Republic of Germany A, DLA, 8-12-84.

*Murray, Clarence G., 1471 Ramer Dr., Jerome, ID 83338 (See Transport Tire Company, Inc.)

Musgrave, Gordon, Denver, CO (Also M & M Transport Service, Inc.) D, DOL, 11-18-84.

*Myers, Richard, 90 Grove Street, Paterson, NJ 07503 (Also Commercial Building Maintenance Co.) A, GSA, 11-5-84.

Mynre, Harry, Inc., Harrisburg, PA, F, DOL, Indef.

N

Nash, Robert E. (See Butt, John William, Jr.)

National Cleansing Product Corporation (See Bowles, John F.)

National Fuel Oil Company, Inc., 175 Orange Street, Newark, NJ 07102 (Also Telenello, William) A, DLA, 8-10-85.

National Terminal, Inc., 525 Raymond Blvd., Newark, NJ 07102, A, DLA, 7-27-85.

Nationwide Building Maintenance, 509 North Centinela, Inglewood, CA 90302 (See Gillespie, Charles)

Nationwide Building Maintenance, Inc., Alexandria, VA, D, DOL, 5-17-85.

Navarro, Antonette (See Amity Precision Spring Company, Inc.)

Navarro, Rocco, Jr. (See Amity Precision Spring Company, Inc.)

Navarro, Rocco, Sr. (See Amity Precision Spring Company, Inc.)

Neal, Brenda (See Pat's Van Lines)

Neely Nob Construction, Citrus Heights, CA (Also Johnson, Neal R.) G, DOL, 11-15-88.

Nebraska Beef Processors, 2605 North 7th St., Gering, NE 68341 (See Cattle King Beef Company)

Nelson Digging Service (See Nelson, James Richard)

Nelson, James Richard, Parker, AZ (Also Nelson Digging Service) D, DOL, 2-1-88.

Netherlon, Lester (See Omnibus Corporation)

Newton, Bobbie Ray, 2323 NW 78th, Lawton, OK 73501 (Also Great Plains Cleaners, Inc.; Great Plains Laundry and Dry Cleaners, Inc.) A, ARMY, 9-6-88.

New World Construction Co., 4005 Capron Rd., Titusville, FL 32780 (Also ALB Industries, Inc. (ALB); Boschen, Arthur L., Jr.; White, James T., Jr.) A, NASA, 2-25-85.

New York Central Corporation (See Goldberg Michael)

Newberry Trucking Co., Laeger, WV (Also Newberry, William L.) D, DOL, 7-15-85.

Newberry, William L. (See Newberry Trucking Co.)

Newman, Fred M., PhD., 1518 Inlet Court, Reston, VA 22090, A, DOI, 9-15-88.

*NISSI Corporation (See Godbolt, Bernice)

*Nitti, Victor (See Intercontinental Marketing Corp.)

Norfolk Packing Company, Inc., 620 E. Olney Road, Norfolk, VA 23507 (Also Bell, Joseph S., IV; Cohen, Jack) B, DLA, Indef.

North American Reporting, Inc., 324 4th Street, NE., Washington, DC 20002 (Also Boyd, Richard) B, ARMY, Indef.

North Broward Industries, Inc., 839-41 NW 57th Place, Ft. Lauderdale, FL 33321 (See Perkins, Sidney)

Norwalk Metal Craftsmen, Inc. (See Benzenhoefer, Emli J.)

Noteboom, Cary (See Noteboom, Ray, Inc.)

Noteboom, Ray, Inc., Fort Worth, TX (Also Noteboom, Cary; Noteboom, Ray) G, DOL, 8-1-84.

Noteboom, Ray (See Noteboom, Ray, Inc.)

*Nova Enterprises, Inc., 406 Youtz Drive, Severna Park, MD (See Prickett, Frederick G.)

O

*Ocean Market Consultants (See Ocean Market Consultants, Inc.)

*Ocean Market Consultants Company, Inc. (See Ocean Market Consultants, Inc.)

*Ocean Market Consultants, Inc., 4250 Pacific Highway, San Diego, CA 92110 (Also Ocean Market Consultants Company, Inc.; Ocean Market Consultants; Kenny, John E.; Gray Gryphon Associates; Information Transfer Service; Technical Support Associates) A, NAVY, 5-2-84.

Office Cleaners, Inc., Washington, DC (Also McGee, Hilary) D, DOL, 11-18-84.

Ohaita, Francis (See Toyo Landscaping Company)

O'Kelley Enterprises, Inc. (Also O'Kelley, Edward) G, DOL, 1-15-85.

O'Kelley, Edward, Tucson, AZ (See O'Kelley Enterprises, Inc.)

Old Dominion Corporation S.A. (See Barnett, Larry D.)

*Olson, Mike D., 12806 Bradley Ave., P.O. Box 4007, Sylmar, CA 91342, B, AF, Indef.

Omnibus Corporation, Arlington, VA; Falls Church, VA (Also Netherlon, Lester) D, DOL, 7-15-85.

One Stop Motor Parts, Inc. (See Westbrook, Robert R.)

O'Neal, Velton Jones (See St. Augustine Trailers, Inc.)

Ordnance Optics, P.O. Box 1911, Pomona, CA 91769 (See Squires, Rucker E.)

Outlaw, J. Raymond, c/o Thomas Brush, Esq., Suite 711, 1 W. Main St., Madison, WI 53703, B, DLA, Indef.

P

PFG & Sons Builders and Contractors, Inc., Chicago, IL, F, DOL, Indef.

Pacella, Ronald (See GRS Corporation)

Pacific Consultants, Inc. (See Pacific Training and Technical Assistance Corporation)

Pacific Hawaii Service, Inc., Honolulu, HI (Also Ball, Fred; Greenen, Terrance B.) D, DOL, 11-18-84.

Pacific Training and Technical Assistance Corporation, c/o Irving Starr, Crystal Plaza, Suite 410, 2001 Jefferson Davis Highway, Arlington, VA 22202 (Also Pacific Consultants, Inc.) A, AID, 2-22-88.

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Painting-Rasmussen

Painting Corporation of Detroit, Inc., and officers, subsidiaries, divisions, purchasers, successors, assignees and/or transferees, Warren, MI, F DOL, Indef.

Pan, George S. (See Systems Architects, Inc.)

Pan, Karen Y. (See Systems Architects, Inc.)

Parish, Raymond N., Glendale, AZ, D, DOL, 3-1-85.

*Parker, Archie D., P.O. Box 1, Edwardsville, AL, A, USDA, 3-17-85, Limited to Timber Sales Only

Parker Transfer Co., Inc., Elyria, OH, D, DOL, 7-15-85.

Partridge, Inc., Winfield, WV (Also Holstetter David G.) D, DOL, 4-25-85.

Parks, Frank Lloyd, Sr., Waverly Garden Apts., Apt. FF-102, Waverly Ave., Frederick, MD, A, NAVY, 6-17-84.

Parvin Landscaping, La Selva Beach, CA (Also Parvin, Russee) G, DOL, 6-1-85.

Parvin Russee (See Parvin Landscaping)

Pateras, George (See Pateras Painting Company)

Pateras Painting Company, Santa Ana, CA (Also Pateras, George) G, DOL, 12-1-85.

Pati's Van Lines, 3616 Indiana Avenue, Kansas City, MO 66128 (Also Neal, Brenda; Pittman, Glenn) A, GSA, 4-28-84.

*Patton, Paul (See Precision Welding and Stress Relieving, Inc.)

Pell, Mark (See Pell, Maurice)

Pell, Maurice, 2437 North 5th Street, Springfield, IL 62702 (Also Pell, Mark; Pell Packaging Company) A, GSA, 8-15-85.

Pell Packaging Company (See Pell, Maurice)

Peninsula Produce Company (See H. Saville and Sons, Inc.)

Peregrino, Hugo Victor, P.O. Box 1109, Centralia, WA 98531 A, USDA, 6-7-85.

Perez Electric Corporation, Malden, MA (Also Dodge, Richard; Perez, Peter) G, DOL, 12-1-85.

Perez, Peter (See Perez Electric Corporation)

Perkins, Sidney, 6635 NW, 27th Street, Coral Springs, FL 33065 (Also AAA Machine, Inc.; Associated Machine and Manufacturing, Inc.; North Broward Industries, Inc.; Southern Commercial, Inc.) B, DLA, Indef.

Perrien, Charles W., Turlock, CA, D, DOL, 3-1-85.

Petroleum Construction Company, Route 1, Box 45, Ashville, AL 35953 (Also Curtis, Don) A, DOI, 12-3-84.

*Pazzello, Anthony J., 6420 Slopes Drive, Dallas, TX, A, Army, 6-19-84.

Phillips, Stewart Eugene, P.O. Box 1814, Chico, CA 95927 B, USDA, Indef.

Phoenix Sales and Service Corporation (See Dohrmann, Gerald A.)

*Photo Center, Inc., (See Martin, Kenneth Clayton)

Pieto, Tony (See Meranetha Construction Co.)

Pittman, Glenn (See Pati's Van Lines)

*Plunkett, Elzavan U., 2140 Brookes Drive, Suttland, MD 20028 (Also Van's Super Service, Inc.; Modern Services, Inc.; E.P. Associates) A, GSA, 3-30-84.

Phymala, Larry A., 30990-063, U.S. Penitentiary, Lewisburg Camp, Lewisburg, PA 17837 (Also Accumul Ltd.; Cal Industries; Cal Investments, Inc.) A, DLA, 3-23-85.

*Poindexter, Marshall A. (See Anthony Fastener Specialty Co.)

Porshia Alexander of America, P.O. Box 2427, Covina, CA 91722 (Also Gaunty, Gerald; Mack, Frederick D.) A, GSA, 7-15-84.

Portsmouth Hardware and Building Supply Company, Inc., 3673 High Street, Portsmouth, VA 23707 (Also Galbreath, Willard C.) B, NAVY, Indef.

Post Transport, Inc., Medway, MA; West Hartford, CT; Cheshire, CT (Also Charter Terminal Transport, Inc.; Frascosa, Charles; Frascosa, John; Sheehan, Robert) D, DOL, 3-1-85.

Postell, Earl R., 418 Hume Ave., Alexandria, VA 22301 (Also E & P Associates, Inc.; Alexandria Graphics and Reproduction Service) A, DOE, 12-12-85; A, GPO, 11-8-85.

Powertherm Corporation, Philadelphia, PA, F DOL, Indef.

*Powers Pump and Electric Co., 302 South Treadway, Abilene, TX 79604 (See Dunlap, Carl B.)

*Powers, Steve D., 302 South Treadway, Abilene, TX 79604 (See Dunlap, Carl B.)

Precision Fasteners, Inc., 490 Easton Road, Horsham, PA 19044 (See Lipschultz, Joel)

*Precision Welding and Stress Relieving, Inc., 301 West 28th Street, National City, CA 92050 (Also Balk, Harlan M.; Patton, Paul) A, NAVY, 12-31-84.

Premier Painting and Decorating (See Bishop, Larry L.)

Price, Larry, Cleveland Heights, OH (Also Floorcovering Services) D, DOL, 11-18-84.

Price, Robert P., c/o Fireguard and Communications, Inc., 59 Adams Avenue, P.O. Box 1390, Port Chester, NY 10573 (Also Fireguard and Communications, Inc.; Fire Detection and Alarm Corp.) A, DLA, 7-18-85.

*Prickett, Frederick G., P.O. Box 5248, St. Thomas Island, VI (Also Prickett, Frederick G., Company, Inc.; Prickett, Thomas P.; Coygen Constructors Company; Framar Contracting Company; Nova Enterprises, Inc.) A, GSA, 10-21-84.

*Prickett, Frederick G., Company, Inc., 406 Youtz Drive, Severna Park, MD (See Prickett, Frederick G.)

*Prickett, Thomas P., 406 Youtz Drive, Severna Park, MD (See Prickett, Frederick G.)

PRM Construction Corporation, 480 Sylvan Avenue, Englewood Cliffs, NJ 07632 (Also Ricciardelli, Frank) A, GSA, 5-2-85.

Professional Floor Crafters, Omaha, NE (Also Stennis, Alton) G, DOL, 8-15-85.

Professional Moving Service (See Hatler, Richard)

Professional Security Officers Company, Asbury Park, NJ (Also Ricker, Carl J.; Ricker, John) D, DOL, 3-15-85.

*Pruitt, Charles, 52310 Winding Waters South, Elkhart, IN 46514 (See Four Star Electric Supply Corp.)

Puma, Albert, 15-15 18th Avenue, Brooklyn, NY 11204 (Also Puma, S. Company, Inc.) A, GSA, 12-8-85.

Puma, S. Company, Inc. (See Puma, Albert)

*Purchasing Services, Inc., c/o Charles Pruitt, 52310 Winding Waters South, Elkhart, IN 46514 (See Four Star Electric Supply Corp.)

Purdy, Burton (See Westbrook, Robert R.)

Q

Q C Services (See Judd, Charles)

QRS Corporation, Canton, MA (Also Pacella, Ronald) G, DOL, 1-3-87.

Quarters Cleaning Service (See Walters, King)

R

R and J Lathing and Plastering, Inc., El Cajon, CA (See Bell, E. Roy)

*R & W Construction (See Build Well Construction Company)

*R & W Contractors (See Build Well Construction Company)

Rais, Anthony (See Menicucci, Rudolph)

Rais Heating and Air Conditioning Corporation (See Menicucci, Rudolph)

Rainman, Lionel, 14609 NE 19th St., Redmond, WA 98052 (Also Bryden, Dennis G.; MHC Limited; Michigan Hardware Company Limited) B, AF, Indef.

Ralte, James, Building and Remodeling, Syracuse, NY (Also Ralte, James M.) G, DOL, 8-1-84.

Ralte, James M. (See Ralte, James, Building and Remodeling)

Randeb, Inc., Newton Square, PA (Also Badnar, Robert J.) F, DOL, Indef.

Randies, Charles W. (See LaGrange Painting)

*Rankins, Jerry, 907 North Broadway, Greenville, MS 38701 (Also Rankins, Jerry, Trucking Co.) A, PS, 3-31-85.

*Rankins, Jerry, Trucking Co. (See Rankins, Jerry)

Raskin, Al (See Levy Auto Parts of Canada)

Rasmussen, Ray L., Kalispell, MT, D, DOL, 9-1-84.

February 1984

Ray-Shiroishi

- Ray, Harold**, Ogden, IL or Urbana, IL; (Also Ray's Trucking Service; Ray, Jerry; Ray's Trucking; Cooper, Michael; Cooper Trucking; Ray, Jack) D, DOL, 9-15-85.
- Ray, Jack** (See Ray, Harold)
- Ray, Jerry** (See Ray, Harold)
- Ray's Trucking** (See Ray, Harold)
- Ray's Trucking Service** (See Ray, Harold)
- Raycomm Industries of Colorado, Inc.**, 6753 East 47th Avenue, Denver, CO 80216 (See Raymond, Joseph J.)
- Raycomm Industries, Inc.** (See Raymond, Joseph J.)
- Raycomm Technical Services, Inc.** (See Raymond, Joseph J.)
- Raycomm Telecommunications, Inc.** (See Raymond, Joseph J.)
- Raymed, Inc.** (See Raymond, Joseph J.)
- Raymond, Joseph J.**, P.O. Box 971, Route 33, Freehold, NJ 07728 (Also Raycomm Industries, Inc.; Raycomm Industries of Colorado, Inc.; Raycomm Technical Services, Inc.; Raycomm Telecommunications, Inc.; Raymed, Inc.; Simon, Karse S.) B, ARMY, Indef.
- Racchia, Anthony E.** (See Hutton Construction Company, Inc.)
- Red Kap, Inc.**, Nashville, TN (See Blue Bell, Inc.)
- Redfield, James** (See Redfield, Jim Plumbing and Heating, Inc.)
- Redfield, Jim, Plumbing and Heating, Inc.**, Miller Place, NY (Also Redfield, James; Close, Larry) G, DOL, 5-15-84.
- Rediformed Sales Company** (See AAA Desk Painters, Inc.)
- Reding, Edward**, Lakeview, MI (Also Reding Land Survey Co.) D, DOL, 3-16-84.
- Reding Land Survey Co.** (See Reding, Edward)
- Regional Scaffolding and Holsting Co., Inc.**, 3900 Webster Ave., Bronx, NY 10470 (Also Mazzucca, Michael A, GSA, 9-24-84.
- Reid, Russell**, Ft. Walton Beach, FL (Also Consolidated Cleaning Co.) D, DOL, 8-2-85.
- Relisted Industries, Inc.**, 9 E. 40th Street, New York, NY 11701 (See Miller, John J.)
- Reliable Security Service, Inc.**, Rio Piedras, Puerto Rico (Also Del Rosari, Juan Ernesto) D, DOL, 8-15-84.
- Reuben Garment International Co., Inc.** (See Moore, Kenneth E., Jr.)
- Ricciardelli, Frank**, 1911 Summit Terrace, Linden, NJ 07036 (See PRIM Construction Corporation)
- Ricker, Carl J.** (See Professional Security Officers Company)
- Ricker, John** (See Professional Security Officers Company)
- Rick's Excavating, Inc.**, San Diego, CA (Also Wood, Henning P, Jr.) C, GAO, 9-15-86.
- Ridley, Grover Rip, Sr.** (See Western Addition Metropolitan Services)
- Riverside Security Patrol and Alarm Service** (See Geyer, Hubert M.)
- Roberts, Charlotte**, Franklinville, NJ (Also Roberts, William; Statewide Construction Company) D, DOL, 3-15-85.
- Roberts, William** (See Roberts, Charlotte)
- *Rodgers, Charles**, 712 Barbara Lane, Keller, TX, A, ARMY, 7-2-85.
- Rojc Masonry and Concrete Company, Inc.**, Maspeth, NY (Also Sini, Joseph) G, DOL, 2-1-86.
- Roman Corporation, The**, 1810 Richard Avenue, Santa Clara, CA 95050 (Also Formica, Vito; Silva, Arlindo) A, DLA, 7-13-86.
- Romanow Building Services, Inc.**, Saginaw, MI (Also Romanow, Harry) D, DOL, 4-1-84.
- Romanow, Harry** (See Romanow Building Services, Inc.)
- *Romanowski, Donald** (See LaBer Transportation Corp.)
- Rose City Glass Co.**, Norwich, CT (Also Bibear, Maurice) G, DOL, 8-17-84.
- *Rosen, David**, 2575 Lake Avenue, Miami Beach, FL 33140, A, ARMY, 8-27-84.
- Rotondo, Raymond F.** (See Anchor Business Forms, Inc.)
- Rubin, Leonard**, Los Angeles, CA, D, DOL, 8-3-84.
- Rupp, H. E.**, Bridgeville, CA (Also Rupp, H. E., Construction) D, DOL, 4-1-84.
- Rupp, H. E., Construction** (See Rupp, H. E.)
- Russell, David E.**, P.O. Box 12824, Norfolk, VA 23502 (Also Russell, D. S., and Sons, Inc.) A, DLA, 7-20-86.
- Russell, D. S., and Sons, Inc.** (See Russell, David E.)
- Russo, Joseph P.**, c/o Tidewater Produce Company, 4015 Victory Blvd., Portsmouth, VA 23701, B, DLA, Indef.
- Russo, Matthew J., Jr.** (See Tidewater Produce Co.)
- S**
- S. A. I. (See Systems Architects, Inc.)**
- S and P Meats, Inc.**, 815 North Regal, Box 4186, Spokane, WA 99202 (Also Van Damme, Maurice) A, DLA, 2-15-84.
- S.T.C. Construction Co.**, and its officers, subsidiaries and divisions, and all purchasers, successors, assignees and transferees, Cherry Hill, NJ, F, DOL, Indef.
- Sacramento Electronics Repair** (See Doyal, Lynn A.)
- Sandia Die and Cartridge Company** (See Hertzler Enterprises, Inc.)
- Sandrich, Inc.** (See Stanger, Alfred T.)
- Santos, F., Painting, Inc.**, Westport, MA (Also Santos, Frank) G, DOL, 3-15-85.
- Santos, Frank** (See Santos, F., Painting, Inc.)
- Savelieff, Timofei, M.**, Angel, OR, D, DOL, 6-15-84.
- Scherl, Morton**, c/o Atlas Hospital Equipment Co., Inc., 1000 Railroad St., Windsor, PA 15963, B, DLA, Indef.
- *Schieselman, Michael**, P.O. Box 98251, Atlanta, GA 30359 (Also Columbus, Michael; Morgan, Stephen; M & R Supplies, Inc.; Micro Chem Manufacturing Co., Inc.) A, GSA, 8-17-84.
- Schlesinger, Stephen R.**, 2333 Leisure Lake Drive, Dunwoody, GA 30130 (See Eaton, James L.)
- *Schmid and Son, Inc.** (See Schmid, Gunther)
- *Schmid, Gunther**, 1012 Springfield Avenue, Mountainside, NJ 07092 (Also Schmid and Son, Inc.) A, ARMY, 7-26-85.
- Schnell, Michael B.** (See All Star Restoration, Inc.)
- *Schuckie, Albert J.**, 411 West River Rd., Orange, CT 06477, A, PS, 7-15-85.
- Schwabke, Mark**, Monmouth, OR, D, DOL, 3-16-84.
- Schweitzer, Leo III**, c/o Thomas Keenan, Esquire, 360 Main St., P.O. Box A, Collegeville, PA 19426 (Also Sunshine Machine, Inc.; V and T Machine, Inc.) A, DLA, 8-23-86.
- Scott, William** (See Diesel Energy Products, Inc.)
- Scott, William M. H.** (See Mahone Harrison Construction Company, Inc.)
- Scufoza, Joseph** (See Haulaway, Inc.)
- Seaman Products of California** (See Butterfield, Joseph)
- Sellers, Edward**, 18922 Goodvale Road, Canyon Country, CA 91351 (See Gillespie, Charles)
- Serve Flex** (See Serve Flex, Inc.)
- Serve Flex CBM** (See Serve Flex, Inc.)
- Serve Flex, Inc.**, Olympia Fields, IL; Andover, MN (Also Serve Flex; Serve Flex CBM; Serve Flex, Ltd.; Combined Maintenance Co.; Robert, Carl) D, DOL, 2-1-85.
- Serve Flex, Ltd.** (See Serve Flex, Inc.)
- Servcon** (See Management Development Company)
- Service Contract Consultants** (See Management Development Company)
- Service Management Corporation** (See Management Development Company)
- Serverson, Kristine L.** (See Management Development Company)
- Sharipoff, Antonio**, 5791 South Schneider Rd., Woodburn, OR 97071, A, USDA, 5-3-84.
- *Shear, Leonard** (See Federal Sales Associates, Inc.)
- Sheehan, Robert** (See Post Transport, Inc.)
- *Shirbar Industries**, 314 1/2 Shelby Street, Sidney, OH 45365 (Also Knox, Barry) A, DLA, 12-7-84.
- *Shiroishi, Makoto** (See Yuzo Susangano, Inc.)

Shriver-Timberline

- *Shriver, Sara B., Suite 205, 1500 North Beauregard Street, Alexandria, VA 22311, A, AF, 8-14-84.
- Shurkman, Julius, 17 Crickett Club Drive, Roslyn, NY 114619 (See Atlas Hospital Equipment Company, Inc.)
- Silva, Arlindo (See Roman Corporation)
- Simmons, John A., Barberston, OH, D, DOL, 6-1-85.
- Simon, Karas S. (See Raymond, Joseph J.)
- Simpson, Jimmy Wayne, P.O. Box 187, Trilby, FL 33593 (Also GEMCO Construction, Inc.; Simpson, J. W.; Simpson, Wayne) A, NAVY, 8-19-86.
- Simpson, J. W. (See Simpson, Jimmy Wayne)
- Simpson, Wayne (See Simpson, Jimmy Wayne)
- Sims, Charles C., Seaside, CA (Also Lafayette Janitorial Services) D, DOL, 11-16-84.
- Sini, Joseph (See Rojo Masonry and Concrete Company, Inc.)
- Sloan, Daniel (See Menlo Service Corporation)
- Smiley, Eugene, Anchorage, AK (Also Just Rite Cleaners) D, DOL, 2-1-85.
- Smith, Jerry (See Smith, Jerry, Inc.)
- Smith, Jerry, Inc., Philadelphia, PA (Also Glassman, Ralph; Mastroianni, John; Smith, Jerry) G, DOL, 5-2-86.
- Smith, Quentin (See Cherokee Indian Development Corp.)
- Smith, William, Pleasantville, NJ (Also Atlantic Maintenance Company) D, DOL, 5-17-85.
- Smith, William E., Allen Park, MI, D, DOL, 6-17-86.
- Smokowski, Audrey (See Auburn Block Hauling Co., Inc.)
- *Smookler, Harry (See Transport Tire Company, Inc.)
- Smyth, George W., Enfield, CT (Also Smyth, Wayne; Smyth Trucking) D, DOL, 11-18-84.
- Smyth Trucking (See Smyth, George W.)
- Smyth, Wayne (See Smyth, George W.)
- Sofsee, LeRoy (See Berkley Tomaso and Produce Company)
- Somerset Surgical Instruments Corp. (See Medical Devices of Fall River, Inc.)
- Southeastern Gauge, Ltd., 3482 Oakcliff Road, Doraville, GA 30340 (See Eaton, James L.)
- *Southeastern Mail Transport, Inc., 6187 Raintree Road, Jacksonville, FL 32211 (Also Davis, Tony E.) A, PS, 10-18-84.
- Southern Business Systems, Troy, AL (Also Swindall, Jack) D, DOL, 7-15-85.
- Southern Commercial, Inc., 839-41 NW 57th Place, FL Lauderdale, FL 33321 (See Perkins, Sidney)
- *Southern River Rock, P.O. Box 112, Perryville, MO, A, ARMY, 4-1-85.
- Southland Tool and Supply, 3482 Oakcliff Road, Doraville, GA 30340 (See Eaton, James L.)
- *Spawr, Francis N. (See Spawr Optical Research, Inc.)
- *Spawr Optical Research, Inc., 1527 Pomona Road, Corona, CA 91720 (Also Spawr, Francis N.; Spawr, Walter J.) A, AF, 2-21-85.
- *Spawr, Walter J. (See Spawr Optical Research, Inc.)
- Sparax, Ervin D. (See AAA Desk Painters, Inc.)
- Spivey, Raymond, Route 3, Box 534, Gate City, VA 24251 (See Spivey, William)
- Spivey, William, 705 S. Milwaukee Avenue, Libertyville, IL 60048 (Also Transcontinental, Inc.; Spivey, Raymond) A, GSA, 7-23-85.
- Splinter, Barry W. (See American Cotton Yarns, Inc.)
- Squires, Raymond M. (See Squires, Rucker E.)
- Squires, Rucker E., 3956 Floriac, Claremont, CA 91711 (Also Squires, Raymond M.; Thompson Optical Engineering Co.; Hydro-Engineering Co.; Ordnance Optics) A, ARMY, 10-18-85.
- St. Augustine Shipbuilding Co. (See St. Augustine Trawlers, Inc.)
- St. Augustine Trawlers, Inc., P.O. Box 40, 404 South Ribiera Street, St. Augustine, FL 32084 (Also St. Augustine Shipbuilding Co.; O'Neil, Vernon Jones; Thompson, Jerry D.) A, NAVY, 3-10-86.
- Standard Air Parts, Inc., 12445 Gladstone St., San Fernando, CA 91342 (Also Bar Aviation; Lambert, Pat M.; Lambert, Raymond S.; Lambert, Robert D.; Lambert, Rose) B, DLA, Indef.
- Stanger, Alfred T., 330 Governor's Highway, South Windsor, CT 06074 (Also Electro-Methods, Inc.; Hemisphere Aerospace Limited, Inc.; Kumits, John; Macor Sales, Inc.; Horowitz, Richard I.; Sandrich, Inc.; Burke, Leonard; Turbo-Tech, Inc.; Turbo Specialist, Inc.; Jet Data, Inc.) B, AF, Indef.
- Star Route Mail Service (See Ault, William J., Sr.)
- State Fish Co., Inc. (See Cigliano, Anthony J.)
- Statewide Construction Company (See Roberts, Charlotte)
- Stearns, Robert (See Stearns Tile and Carpet Company, Inc.)
- Stearns Tile and Carpet Company, Inc., Holly Hill, FL (Also Stearns, Robert) G, DOL, 3-2-84.
- Stennis, Alton (See Professional Floor Crafters)
- Street, Robert (See Butt, John William, Jr.)
- *Strygler, H. S. and Company, Inc., 595 Madison Avenue, New York, NY 10022 (Also Strygler, Harry S.) A, ARMY, 4-28-85.
- *Strygler, Harry S. (See Strygler, H. S. and Company, Inc.)
- Suburban Industrial Maintenance Company, Inc. (See Butler, James P., Jr.)
- *Sumter Frozen Foods, Inc., 737 Broad Street, Sumter, SC 29150, A, AF, 5-21-84.
- Sunshine Machine, Inc. (See Schweitzer, Leo, III)
- Superior Construction Company, Corahville, IA (Also Hansen, James W.) G, DOL, 2-1-86.
- *Surf Hunter Electric Company, Inc., 1649 Smith Place, Far Rockaway, NY (Also Herschkom, Morton) A, GSA, 12-18-84.
- Surgical World, Inc. (See Medical Devices of Fall River, Inc.)
- Surg-Med Corporation, 531 Fairway Drive, Somerset, MA 02730 (See Medical Devices of Fall River, Inc.)
- Sweda, John W., P.O. Box 411, Hazleton, PA 18201 (Also Intrepid Detective Agency) A, GSA, 4-21-86.
- Swindall, Jack (See Southern Business Systems)
- Systems Architects, Inc., Thomas Patten Dr., Randolph, MA 02308 (Also Pan, George S.; Pan, Karen Y.; S.A.I.) B, AF, Indef.
- T**
- Tamp Corporation, Arlington Heights, IL (Also Torrence, James F.; Jc-18 Stringing and Waxing Service) D, DOL, 2-16-85.
- Tassell, Martin C. (See Lumbercraft)
- *Technical Support Associates, Tempe, AZ 85281 (See Ocean Market Consultants, Inc.)
- Tapfer, Milton (See Kasco Metal Products)
- Texas Stock Tab Company, 652 Southwestern Drive, Coppell, TX 75019, B, GSA, GPO, Indef.
- Theodorou, George, Gartenstrasse 20, 8710 Kitzingen, Federal Republic of Germany, A, DLA, 3-14-84.
- Thornberg Industries, Inc., Davenport, IA (Also Carpet Brokers, Inc.; Bergstrom, Thomas P.; Moore, Larry) G, DOL, 11-15-85.
- Thompson, Jerry D., Route 1, Box 196 Y, Bonnell, FL 32010 (See St. Augustine Trawlers, Inc.)
- Thompson Optical Engineering Company, 10355 Vacco Street, South El Monte, CA 91733 (See Squires, Rucker E.)
- Thompson, William C., 13 Dogwood Knoll, Killingsworth, CT 06417 (Also Universal Plastics and Tools, Inc.; M and M Corporation) A, DLA, 10-13-86.
- Tidewater Produce Co., 4015 Victory Blvd., Portsmouth, VA 23701 (Also Russo, Matthew J., Jr.) B, DLA, Indef.
- Tiffany Food Services, Inc., Bohemia, NY; Ronkonkoma, NY (Also Flanagan, Joseph) D, DOL, 5-17-85.
- Timberline Reforestation, Inc., Curtin, OR (Also Good, Gary) D, DOL, 3-1-86.

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Titanium-Wilson

Titanium Specialties, Inc.,
20926 Rasca Street,
Chatsworth, CA 91311 (See
Butterfield, Joseph)

Tolbert, Carl (See Serva Flex,
Inc.)

Toll, William E. (See Top
Electric Co., Inc.)

Tools Unlimited, Inc., 3482
Oakcliff Road, Doraville, GA
30340 (See Easton, James L.)

Top Electric Co., Inc.,
Norwood, MA (Also Toll, William
E.) C, GAO, 8-15-84.

Torrence, James F., Arlington
Heights, IL (See Tamp
Corporation)

Total Energy Applications
Management, Inc., 7221
Briarcliff Drive, Springfield, VA
22153, A, DOE, 10-18-85.

Toyo Landscaping Company,
Santa Ana, CA (Also Onshita,
Francis) D, DOL, 11-16-84.

Trading Corporation of America
(See Moffo, Jerry)

*Trans-Continental Enterprises,
PO Box 347, Morrow, GA (See
Chambers, Benjamin)

Transcontinental, Inc. (See
Spivey, William)

Trans-Minority Enterprises,
Inc., Florissant, MO, D, DOL,
2-1-85.

*Transport Tire Company, Inc.,
Route 4, Box 162, Jerome, ID
83338 (Also Transport Trucking
Company, Inc.; Murray,
Clarence G.; Smookler, Harry)
A, ARMY, 12-21-84.

*Transport Trucking Co., Inc.
(See Transport Tire Co., Inc.)

Transway, Inc., Metairie, LA, D,
DOL, 3-16-84.

Treasure Isle, Inc., Dover, FL
33527 (Also Hartley, G. Cecil)
A, DLA, 4-15-86.

Triple B Builders, Inc. (See
Buckner, Robert)

Tufaniello, William (See National
Fuel Oil Company, Inc.)

Tupper, George Raymond (See
American Marine Technology
Company, Inc.)

Turbo Specialist, Inc., 117
Hartford, Tolland, CT 60684
(See Stanger, Alfred T.)

Turbo-Tech, Inc., 117 Hartford,
Tolland, CT 06084 (See
Stanger, Alfred T.)

Turner, Frances G. (See Adams
Commission Company, Inc.)

Turney, Lynn (See Westgate
Homes, Inc.)

U

*Ulanow, Samuel A. (See ABC
Salvage Corporation)

Ullenberg Corporation (See
Ullenberg, Ronald T.)

Ullenberg, Ronald T., 413
Spring Street, Chattanooga, TN
37405 (Also Ullenberg
Corporation; Lady Fair, Inc.) A,
ARMY, 10-19-85.

Ultra Power Services Company
(See McQueen, Donald)

Unga Corporation, Foster City,
CA (Also Unga, Willis L.) D,
DOL, 4-1-84.

Unga, Willis L. (See Unga
Corporation)

U.N.I. Contractors, Inc. (See
Upton, George M.)

United Investigative Agencies,
Inc., Alexandria, VA, D, DOL,
5-17-85.

Universal Decking Systems,
Inc., 3433 Pickwick Street, San
Diego, CA 92102 (Also
Carpenter, William W., Sr.;
Wilke, Larry W.) A, NAVY,
10-20-86.

Universal Plastics and Tools,
Inc., 1 Mitchell Drive,
Manchester, CT 06040 (See
Thompson, William C.)

Upton, George M., PO Box
2511, Texarkana, AR 75501
(Also U.N.I. Contractors, Inc.) A,
ARMY, 8-19-86.

Upton, M. L. (See A-1 Building
Contractors, Inc.)

Urban Laboratories, Inc., PO
Box 1040, Tacoma, WA 98401
(See Burke, Gerald G.)

V

V and T Machine, Inc. (See
Schweitzer, Leo, III)

V.A.W. Industries, Inc. (See
Winstead, Vernon A.)

Valente, James (See Best
Industries, Inc.)

Vanscore, Lee, c/o West Point
Research or J & A Precision
Company, 2 Selleck Street,
Stamford, CT 06902 (Also Lee
Industries; West Point
Research, Inc.) A, DLA,
8-13-85.

Van Damme, Maurice (See S
and P Meats, Inc.)

*Van's Super Service, Inc., PO
Box 16092, Suitland, MD 20023
(See Plunkett, Elzavon)

Vega Enterprises, Inc., El
Paso, TX (Also Vega Moving &
Storage; Vega, Joe, Jr.) D,
DOL, 3-16-84.

Vega, Joe, Jr. (See Vega
Enterprises, Inc.)

Vega Moving & Storage (See
Vega Enterprises, Inc.)

Vembro Industries, Inc., Scotia,
NY (Also Venditti, Louis A.) G,
DOL, 11-15-85.

Venditti, Louis A. (See Vembro
Industries, Inc.)

*Villaire, Gerald E. (See
American Coating Specialists)

*Villaire, Thomas E. (See
American Coating Specialists)

*Virginia International Testing
Laboratories (See Cole, Calvin
FH)

W

Walters, King, Marina, CA
(Also Quarters Cleaning
Services; Jim's Janitorial
Service; Ft. Ord Cleaning
Service; Walters Quarters
Cleaning Service) D, DOL,
12-1-84.

Walters Quarters Cleaning
Service (See Walters, King)

*Wear, Robert C., 6204 Vorch
Lane, Washington, DC 20016,
A, GSA, 4-17-84.

*Webb, Harold N., PO Box
7040, Norfolk, VA 23409, A,
NAVY, 8-18-85.

Weinstein, Larry, 226 West
Rittenhouse Square,
Philadelphia, PA 19103 (Also
Lawrence Richard, Inc.) A, AF,
2-13-85.

Wendel and Company, Inc.,
Covington, OH (Also Lauber,
Joseph) C, GAO, 7-15-84.

Wentworth, George E., Jr. (See
Hawker Industries, Inc.)

*West, C. B., 737 Broad Street,
Sumter, SC 29150, A, AF,
5-21-84.

West Point Research, Inc. (See
Vanscore, Lee)

West, Dorothy Atkins, 737
Broad St., Sumter, SC 29150
(See Atkins and West, Inc.)

Westales Equipment Company
(See Duffy, James Joseph)

Westbrook, Robert R., PO
Box 5503, Arlington, TX 76011
(Also Eres, Manuel J.; One Stop
Motor Parts, Inc.; Purdy, Burton)
B, AF, Indef.

Westchester Wiping Cloth
Corporation, 1487 Blondell
Avenue, Bronx, NY 10461 (Also
Clemente, Elie P.; Clemente,
Thomas; Mount Vernon Wiping
Cloth Corporation) A, GSA,
10-26-84.

Western Addition
Metropolitan Services, 230
California Street, San Francisco,
CA 94111 (Also Ridley, Grover
Rip, Sr.; Williams, Etzel Fleet)
A, GSA, 7-20-85.

Westgate Homes, Inc., Mingo
County, WV: Stephenville, TX
(Also Turney, Lynn) D, DOL,
3-15-85.

*Westman, Carl F., 3110 Tilden
Ave., Michigan City, IN 46360,
A, GSA, 10-8-84.

*Weston, Donald A., 2147
Foster Street, Oceanside, CA
92054, A, NAVY, 7-22-85.

Westside Landscaping, Akron,
OH (Also Johnson, Jimmie L.)
G, DOL, 3-15-85.

White, James T., Jr. (See New
World Construction Co.)

Wickham, Harry, Troy, NY (See
Madison Avenue Builders,
Inc.)

Wiegand, James Robert, Jr.
(See American Marine
Technology Company, Inc.)

Wiesen, David L. (See Adac,
Inc.)

Wilco Electric Company (See
Guttenberg, William)

Wilke, Larry W. (See Universal
Decking Systems, Inc.)

Wilkins, Walton B. (Also
Comax Service Corp., a
California Corp.; Comax
Service Corp., a Texas Corp.) A,
ARMY, 1-17-86.

*Williams, Drake A. (See A Jiffy,
Inc.)

Willman, Bernice, Mail hauling
and as executrix for the estate
of Willman, Lawrence G.; Erie,
PA (Also Willman, Lee) D, DOL,
4-1-84.

Williams, Etzel Fleet (See
Western Addition
Metropolitan Services)

Willman, Lee (See Willman,
Bernice)

Wilson, Emeal, Sr. (See A-1
Janitorial Services, Inc.)

Wilson-Zigler

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Wilson, Jami E. (See A and E Electric Company, Inc.)

Wilson, Olie (See A-1 Janitorial Service, Inc.)

Winstead, Vernon A., Chicago, IL (Also V.A.W. Industries, Inc.) D, DOL, 7-15-85.

Winters, Stephen H. (See Ecotodyne Corporation)

Wirt, David M., 1445 Municipal Parkway, Douglasville, GA 30134 (Also Municipal and Industrial Pipe Services, Ltd.; Wirt, Gordon D.; Wirt, Judith C.) B, AF, Indef.

Wirt, Gordon D. (See Wirt, David M.)

Wirt, Judith C. (See Wirt, David M.)

Wirth, E. J., Machine and Tool Company, Inc., 2014 Ford Road, Bristol, PA 19007 (See Wirth, Emil)

Wirth, Emil, 711 Chestnut Lane, Yardley, PA 19087 (Also Wirth, E. J., Machine and Tool Company, Inc.) A, DLA, 1-17-86.

Wolfe, Allen, Jr. (See Briteway Cleaning Contractors, Inc.)

Wolfe, Allen III (See Briteway Cleaning Contractors, Inc.)

Wood, George Bertram Tunney (See American Marine Technology Company, Inc.)

Wood, Henning P., Jr. (See Rick's Excavating, Inc.)

Woolard, Marvin, Philadelphia, PA (Also Woolard's Light Hauling) G, DOL, 5-1-84.

Woolard's Light Hauling (See Woolard, Marvin)

Worcester County Refrigeration, Inc., Worcester, MA (Also General, James; Freeman, Anton G.) G, DOL, 5-1-84.

Workman Builders, Utica, OH (Also Workman, Larry) G, DOL, 5-2-86.

Workman, Larry (See Workman Builders)

World Management Services (See Barnett, Larry D.)

*Worldwide Sales, Inc., 526 N. Hillcrest Rd., Beverly Hills, CA (Also Fuman, Jerome, Dr.) A, ARMY, 5-3-85.

Wrangler, Division, Mr., Greensboro, NC (See Blue Bell, Inc.)

Wrangler Shops of Puerto Rico, Inc., Mayaguez, Puerto Rico (See Blue Bell, Inc.)

Wright, Harold L., c/o Robert Bailey, 55 West Jackson Blvd., Chicago, IL 60604 A, DLA, 10-14-86.

Wright, Robert N. (See M. Seville and Sons, Inc.)

Wright, Rusty, Alpine, AZ, D, DOL, 11-15-84.

Y

Yardmaster, Inc., Painesville, OH (Also Cotwell, Rick; Kluznik, Kurt) G, DOL, 4-15-86.

Yeager, Dome (See A-Allied American, Inc.)

Yeager, Eloise (See A-Allied American, Inc.)

Yeager, Kenneth (See A-Allied American, Inc.)

Yellow Coach Lines, Inc., Bristol, VA (Also Campbell, Thomas; Campbell, William) D, DOL, 2-1-85.

*Yida, Paul D., 1067 Colverdale Lane, Desoto, TX, A, ARMY, 3-23-84.

Yoder, Denise, c/o Thomas M. Keenan, 360 Main St., P.O. Box A, Collegeville, PA 19426 (Also DFY Supply, Inc.) A, DLA, 8-23-86.

*Yuzo Susangano, Inc., 1332 N. Miller Ave., Los Angeles, CA 90063 (Also Shiroishi, Makoto) A, ARMY, 7-1-85.

Z

Zabulun Land Co., Inc. (See Moore, Kenneth E., Jr.)

Zabulun Sales Co., Inc. (See Moore, Kenneth E., Jr.)

Zigler Enterprises (See Zigler, Ken)

Zigler, Ken, Toledo, OR; Eureka, CA (Also Zigler Enterprises) D, DOL, 2-1-85.

Identifying Nomenclature of Spare Parts

Question: Reports in the press and through the Congressional hearing process indicate that DoD purchasing officials often refer to part numbers with no knowledge of the exact nature of the part being purchased. Do you recommend that procedures be initiated whereby this system can be reformed so that purchasing officials can more easily identify overcosting of commonplace spare parts or tools?

Answer: DoD instituted improved procedures several years ago to provide better information for item identification. The Parts Control Program identifies proposed parts which duplicate common items. It encourages use of common items, already in the inventory. Application of the Parts Control Program has recently been directed for all development contracts. Another significant effort is the Accelerated Approved Item Name procedure. This procedure is part of the national catalog system. The program has received renewed emphasis to improve the quality of applied nomenclature. The system requires the processing of descriptive characteristics of items and is therefore dependent on the quality of technical data available to the government. These two procedures together operate to improve the identification of spare parts.

Steps to Produce More Competition

Question: What specific steps is DOD taking to produce more competition among suppliers to drive costs down in procurement actions? Please specifically identify what percentage of the total spare parts procurement activity is now being conducted competitively in comparison with a year ago.

Answer: The Department of Defense has an extensive program underway to produce more competition among suppliers. Then DepSecDef Carlucci implemented an initiative in 1981 to enhance competition. As a result of that initiative, DoD directed the Services and Defense Logistics Agency to designate Competition Advocates, established competition goals, and ensure commander awareness. That DoD initiatives to enhance competition continues to exist as part of the DoD Acquisition Improvement Program.

The Competition Advocates work to increase competition by reducing impediments to competition, identifying and qualifying additional sources, and ensuring that adequate consideration has been given to competitive opportunities. All decisions to continue noncompetitive acquisition of requirements must be documented to the Competition Advocate's satisfaction. Two additional functions associated with this initiative are the Replenishment Parts Breakout Program and the program to analyze the value of spare parts prior to acquisition.

The competition rate for replenishment spare parts is as follows:

	FY 83	First Quarter FY 84
Army	*	*
Navy	13.5%	21.1% (5 months)
Air Force	30.0%	38.4%
DLA	65.0%	**

*FY83 figures range from 70% for Tank Automotive Command to 19% for Missile Command; FY84 figures not available.

**Figures for FY84 are not yet available for spare parts. DLA records an overall increase of 5% in competition for FY84.

QUESTION: Reports by the Inspector General of DoD indicate an attitude of complacency by procuring officials which does not adequately promote cost-consciousness. There have been suggestions that such an attitude is so pervasive on the part of officials of the Defense Contract Audit Agency that that agency should be abolished and its functions be taken over by the Office of the Inspector General. What other ways can you suggest to improve the performance of DCAA?

ANSWER: Comments from highly selective reports by the DoD Inspector General have been taken out of context and unwarranted inferences drawn therefrom. The three reports issued by the Inspector General have drawn no such general conclusion of complacency on the part of the Defense Contract Audit Agency (DCAA). The Report on the Review of Audits and Other Evaluations of Major Subcontractors' Pricing Proposals (APO 84-3, dated January 16, 1984) stated that, "The DCAA generally provided timely and quality audit assistance to DoD contracting officers." The Report on Oversight Review of DCAA - Reporting of Fraud or Illegal Acts (APO 84-4, dated March 9, 1984) noted "that DCAA had undertaken some significant initiatives to increase the awareness of its auditors to contractor fraud." In a Report on Oversight Review of DCAA Access to Contractor Records (APO 84-5, dated March 9, 1984), the IG stated that "DCAA field auditors were actively pursuing and generally receiving access to those contractor records required for audit accomplishment."

DCAA has demonstrated continuing sound performance; in fiscal year 1983, savings achieved by the sustaining of costs questioned by DCAA totaled \$7 billion, or a savings of \$50 to the taxpayer for each \$1 spent in agency operating costs. Innovative techniques continually are being explored by DCAA to improve its performance. The agency is subject to continuing oversight review by the DoD Inspector General.

The Department recognizes that improvements can always be made, but believes that DCAA must remain independent of both acquisition organizations and the Inspector General if it is to perform an effective contract audit function.

End-of-Fiscal Year Spending Spree

Question: The Office of Federal Procurement Policy is currently conducting a study of end-of-fiscal year spending practices. To what extent are you cooperating with that office in conducting that study in order to reduce the abuses associated with such spending practices? What specific actions are you currently taking to avoid the repetition of this behavior at the end of the current fiscal year?

Answer: We are cooperating fully with the Office of Federal Procurement Policy and have provided information on the transactions of the last week of Fiscal Year 1983.

The alleged yearend spending spree to which you refer was nothing of the sort. Rather, it was a rather lengthy list of contracts which had recently been awarded or were soon to be awarded which was released on the last day of the fiscal year. However, to avoid any misunderstanding in the future, we are revising our procedures for contract announcements.

Question: The Fiscal Year 1984 Defense Appropriations Bill included a provision that the Secretary of Defense should formulate a program which would award defense supply contracts in labor surplus areas. What can you report to me on the implementation of this program with special regard to the State of West Virginia, which currently is burdened by an unemployment rate of 15.7 percent?

Answer: The provision to which you refer first appeared in our fiscal year 1981 Appropriation Bill, and has been included in all subsequent Appropriation Bills with minor changes. Therefore, the provision has been fully implemented, with the procedures for conducting the test already in place and operational. The results of this test are submitted each year in a report from the President to the Chairmen of the Senate and House Armed Services and Appropriations Committees. The latest report was submitted on July 11, 1983 and covered results of the test through December 1982.

We have extracted from that report the information pertaining to West Virginia which is as follows:

74 contracts awarded under the test-value \$10,818,763.

Contracts reported adding 619 employees.

A premium price was paid on 8 contracts.

Value of contracts \$352,327

Value of premium \$6,715

Employees added as result of premium - 2

For comparison purposes, the nation-wide statistics on contracts where premiums were paid are:

708 contracts, value \$58,286,900

Value of premium 1,081,490

There was a net loss of employees of 125

QUESTIONS SUBMITTED BY SENATOR D'AMATO

Review of Accuracy of Data Bases

Question: Has the Department undertaken a review of the accuracy of the data base(s) from which it obtains the statistics it reports to Congress regarding cost growth in spare parts procurements and the level of competition involved in contract awards for spare parts procurements?

Answer: The Services have the responsibility to develop and maintain the data bases. The GAO reported in testimony to the Senate Armed Services Committee on October 25, 1983, on review of the Services' data system. The Services have subsequently responded to GAO's recommendations, essentially agreeing to effect revisions. These actions are being incorporated in the

encompassing program for modernization of the DoD's requirements, procurement and technical documentation systems.

On a more detailed level, the Services are examining the accuracy of prices in their system for each buy in the normal course of doing business. This, for example, is a routine in the Air Force's "Pacer Price" program and the Navy's "Price Fighter" program. From another direction, the data base is being made more accurate by the discontinuance of equal allocation overhead costs to spare parts purchased by multiple line items in a single contract.

A dedicated data base to track degree of competition in spare parts awards on a part by part basis is extremely expensive and difficult to maintain. Spare parts are purchased under many different contractual arrangements--in contracts exclusively awarded for spare parts, as individual line items in contracts primarily for systems or other items, or as individual line items essentially but not totally awarded for spare parts. The DoD Procurement Management Reporting System collects data on an extensive number of data elements on an individual contract basis. It would require a very large resource allocation to track spare parts, many of which are very low dollar, on a part by part basis. To overcome this difficulty, we have developed a practical yet economical alternative. A report of acquisition of replenishment spare parts (which represents the largest portion of spare parts) was instituted with publication of Defense Acquisition Regulation, Supplement Number 6, last July. The first reports from the Services are due in June 1984. These reports will track the degree of competition of replenishment spare parts acquisitions in number by broad commodity categories such as aircraft, aircraft engines, vehicles, missiles, weapons systems, etc. The reports are designed to economically provide that data which is necessary for management of the program without tying up significant resources.

Spare Parts Data Bases

Question: Please identify with specificity the data base(s) upon which you rely when developing information for Congress on spare parts costs and contract competition levels.

Answer: The DoD Procurement Management Reporting System collects data on a contract basis, but is not useful for reporting spare parts costs and competition levels. The data bases for this information are unique for each Military Department and the Defense Logistics Agency (DLA).

The Army uses the Commodity Command Standard System at each of its Materiel Readiness Commands. Within this standard system there are various subsystems, i.e., the Military Standard Contract Administration Procedures which contains all required procurement information. This system contains such things as procurement history to include quantity, procedures, unit price, vendors, delivery times, etc.

For the Navy, the Military Inventory Control Point (UICP) programs contain the data bank for tracking price history for spare parts. This entire family of programs is being modernized under a comprehensive program called Inventory Control Point Resolicitation. It will allow the entire management of spare parts, including pricing, to be more effectively controlled and managed. Procurement statistics and management information are

maintained as part of the Navy Procurement Management Reporting System (PMRS), which is managed by the Chief of Naval Material. The PMRS is the primary basis for Navy contracting statistics provided to Navy management, OSD, and the Congress. Additional data may occasionally be obtained through regular or one-time reports from other offices as required.

The Air Force Logistics Command's Acquisition and Due In System is the data source on spare parts costs and competition in spare parts procurement. The system contains data on each contract action issued by central purchasing activities. Data is input to the system from forms encoded by the buyer at the time the contract action is awarded, and forms encoded by clerks directly from a copy of each contract document.

For DLA, the data used in compiling statistics for Congress on spare parts costs and contract competition levels are derived directly from actual input to the Standard Automated Material Management System (SAMMS). SAMMS consists of supply, financial, technical and procurement subsystems which are completely integrated and serve as validation checks and balances within the system as a whole. As a result, the data is accurate and reflects actual data from contracts awarded without manual edit or adjustment.

Audit Mechanism

Question: 3. Do you have in place any audit mechanism or other process by which you ensure that the data you receive from the individual procurement centers regarding spare parts cost growth and competition in spare parts procurements is accurate?

Question: 4. If you do not have a regular method of assessing the completeness and accuracy of your data base, what level of confidence can you have in your ability to detect and properly characterize emerging management problems, much less devise, implement and monitor the effect of solutions to these problems?

Answer: The prescribed and authorized audit mechanisms to ensure accuracy are the various activities of the enlarged DoD Inspector General (IG) Office. The DoD IG (and its constituent Service IG units) are conducting extensive audits of spare parts acquisition, including follow-up activities. The emphasis placed on achieving accuracy in data by the DoD initiatives to reform spare parts and the IG's audits lead to a high level of confidence that the data is being improved and will ultimately be highly reliable to manage spare parts acquisition.

Spare Parts Automation

QUESTION: You have placed a high priority on designing and fielding an automated \$200 million system to store technical data packages. This is a commendable program. Do you have any effort underway to establish a modern automated process for tracking contract award data at the procurement centers and ensuring that it is both current and accurate?

ANSWER: The Defense Logistics Agency (DLA) has been highly automated since 1969 with its Standard Automated Material Management System (SAMMS). This system covers the entire logistics spectrum of functions to include item management and

inventory control, technical and financial management, and purchasing. This includes an automated system which automatically issues quotations, evaluates them, and issues orders up to \$25,000. The overall system is designed to apply very strict editing and validation of data through an on-line system that assures that the data established in our files are correct. System files are updated to reflect any modifications to contract data. (These data are processed through an on-line system which contains strict edit and validation criteria, thereby assuring that all data entered are current and correct.) Once established in the files, contract data are tracked via various management data reports issued both locally and at the Headquarters level. Among other things, these reports include listings covering the status of open contracts for which final shipment, receipt, or payment has not been made. Additional listings are generated which track contracts that are 30 or more days delinquent. These reports are quite detailed and reflect information on each line item. Additionally, immediate on-line inquiry of contract supply, financial and technical data is available through terminals located throughout each contracting activity.

In 1982, DLA began its ADP modernization program. This program is geared to take full advantage of the state-of-the-art computer technology. SAMMS is but one part of the program and is currently being modernized through a modular phase-in approach over a period of 5 years. Completion of the SAMMS modernization is targeted for 1987.

CONTRACT AWARD DATA

QUESTION. You have placed a high priority on designing and fielding an automated, \$200 million system to store technical data packages. This is a commendable program. Do you have any effort underway to establish a modern automated process for tracking contract award data at the procurement centers and ensuring that it is both current and accurate?

ANSWER. As you are aware the Army, in conjunction with the Air Force, is purchasing the Digital Storage Retrieval Engineering Data System (DSREDS) which will be used at each of our Materiel Readiness Commands to automate the retrieval of technical data packages. The Commodity Standard System used by our Materiel Readiness Commands has automated the purchase and tracking of contract award data at our procurement centers which tracks administrative leadtime, which is the time it takes to prepare Procurement Work Directives until time of award, and the Production Leadtime, which is that period of time from point of award to ship time. In addition, the Commodity Command Standard System files will be adjusted as shipments are received.

QUESTION: You have placed a high priority on designing and fielding an automated, \$200 million system to store technical data packages. This is a commendable program. Do you have any effort underway to establish a modern automated process for tracking contract award data at the procurement centers and ensuring that it is both current and accurate?

ANSWER: Air Force Logistics Command has an initiative for the development and installation of a new automated data processing

system designed to give contracting officers access to contracting and pricing data, including award information. This data system will be available to working level personnel by August 1984.

Air Force Logistics Command also has a long term improvement program called Contract Data Management System (CDMS). CDMS will provide a buyer accessible real time communication network that will automate award data currently tracked under the Federal Procurement Data System.

Question: You have placed a high priority on designing and fielding an automated, \$200 million system to store technical data packages. This is a commendable program. Do you have any effort underway to establish a modern automated process for tracking contract award data at the procurement centers and ensuring that it is both current and accurate?

Answer: The Navy is pursuing replacement of all hardware at Inventory Control Points (ICPs) under the resolicitation project. In conjunction with this effort, we are presently developing a module in support of the contracting functions at the ICPs, to be similar in function to the developing Automated Procurement Accounting Data Entry (APADE) system. APADE applies the capabilities of automated data processing and automated word processing, integrated to the maximum extent permitted by current technology, to facilitate the performance and the management of the procurement process. The system will provide document control, buyer and contract administration support services, automated document preparation, information storage and retrieval, automated interface capabilities, and a wide range of current and accurate management information. In total, the APADE system, to be used at the Naval Supply Centers and Naval Regional Contracting Centers, should enable purchasing activities to improve the responsiveness of the supply system to support fleet and shore requirements.

Spare Parts Procurement Practices

QUESTION: What steps, if any, have you taken to make certain that the contract files themselves, which contain the signed contracts setting forth the joint obligations of the contractor and the government, are secure, are properly indexed and maintained, and are not lost or destroyed inadvertently?

ANSWER: Existing DLA procedures ensure that contract files are properly indexed and maintained. Currently, all contract award data is entered into our Standard Automated Material Management System (SAMMS). After the validation and establishment of the automated system file, the hardcopy contract file is completed, edited and signed by the contracting officer.

Distribution is made to contractors, payment offices, contract administration offices and, where applicable, to customers or receiving activities. The original contract file is retained in an active contract file repository until completion. A contract file is completed when final delivery is accomplished and final payment is made. Notification of these actions is accomplished through receipt of material inspection

and receiving reports, plus a computer generated notice of final payment action. Once these are accomplished, files are reviewed to ensure other administrative actions are complete. If all actions are complete, the files are moved to an inactive status. The intensity of review varies with whether or not the contract is a large purchase (over \$25,000) or a small purchase (under \$25,000). However, the automated portion of the status is the same for either.

Once a file is completed and in an inactive status, our storage and handling regulations prescribe that, for small purchases, they be retained for three years after completion, at which point the file may be destroyed. Large purchase files are retained for three years after which the file may be transferred to a federal records holding center for an additional three years retention. After a total of six years after completion, the file may be destroyed.

In all instances, whether the file is in active, inactive or federal records holding status, it is available on call by authorized personnel. Our major purchasing activities use a central files holding and charge-out system for files held within. Once a file is transferred to a federal records holding area, a file locator system is maintained to identify where the file is until it is destroyed.

CONTRACT FILES

QUESTION: What steps, if any, have you taken to make certain that the contract files themselves, which contain the signed contracts setting forth the joint obligations of the contractor and the government, are secure, are properly indexed and maintained, and are not lost or destroyed inadvertently?

ANSWER: The Army has not experienced problems with the security or availability of signed contracts. The signed contracts are maintained in the contracting officer's current file until completed. While in the current file, unclassified contracts are treated as "For Official Use Only" by being kept in a closed container. Classified contracts, i.e., "Confidential", "Secret", or "Top Secret", are kept in a secure (locked) container in accordance with the Department of the Army's Information Security Program Regulation (AR 380-5). In either case, the contracts are indexed and maintained in accordance with the Army Functional Files System (AR 340-18).

Upon completion of a contract, it is placed in the contracting officer's Record Holding Area. Again, the contracts are secured and filed in accordance with regulations. The Record Holding Area is secured whenever personnel working in that area are absent.

The signed contracts are maintained in the Record Holding Area for six years and three months after date of final payment.

QUESTION: What steps, if any, have you taken to make certain that the contract files themselves, which contain the signed contracts setting forth the joint obligations of the contractor and the government, are secure, are properly indexed and maintained, and are not lost or destroyed inadvertently?

ANSWER: Lost or inadvertently destroyed contracts have never been a major problem. With the enormous volume and continual handling of contracts experienced at our Air Logistics Centers, we cannot, however, totally assure that

some misfilings or losses will not occur. If the thrust of this question alludes to contracts inadvertently destroyed in the preliminary GAO study recently performed at San Antonio Air Logistics Center, we have not been able to complete our investigation of the GAO findings. Of the eight contracts cited as having been inadvertently destroyed at San Antonio, the only one that was identified to our contracting personnel was, in fact, located undamaged. The other seven will be researched upon receipt of similar specific contract identification. The following current procedures have proven adequate over time. Generally, contract files are initiated, developed, and maintained up through contract award by the contracting officer (CO). After contract award the contract file is maintained in the contract library within the contracting activity. The contract library is a controlled access area with assigned personnel to maintain, control and provide security. Upon contract completion, including final payments, inspection and acceptance of all goods or services, and resolution of any claims or disputes, the contract file is sent to storage. In storage, the contract file is held for a number of years depending on the contract type and dollar amount. The time periods for holding contract files are established in the Defense Acquisition Regulation (DAR). At the completion of the storage period the contract file is destroyed. Based on our initial inquiry into the San Antonio situation we believe the discrepancies identified there were one-of-a-kind. Consequently, we do not feel our procedures require revision based on the available facts and we have not instituted any new steps in this area.

Question: What steps, if any, have you taken to make certain that the contract files themselves, which contain the signed contracts setting forth the joint obligations of the contractor and the government, are secure, are properly indexed and maintained, and are not lost or destroyed inadvertently?

Answer: During fiscal year 1983 the Navy processed over 3.6M procurement actions. It is understandable that from this large population of actions there will be instances where contract files will be inadvertently lost or misplaced. The Navy follows procedures as outlined in Federal Acquisition Regulations (FAR) and DoD FAR Supplement on contract file maintenance. These procedures specify standard procedures for contract file creation, maintenance, closeout, and disposition. Additionally, we systematically conduct reviews covering contracting procedures, including contract filing, through internal audits and contract management review teams.

Ensure Cost Growth Control Incorporation

Question: What plans does the Department have to ensure that cost growth control is incorporated as a highly weighted element in the performance evaluation standards for buyers or contracting officers at procurement centers in all services.

Answer: The Secretary of Defense directed the Services on August 29, 1984, to "revise performance evaluation factors for acquisition and logistics managers to include emphasis on spare

parts pricing, breakout, competition, and value engineering accomplishment." The Services have taken action to accomplish this direction.

Fair and Reasonable Prices

Question: What plans does the Department have to make certain that adequate action is taken by buyers at its procurement centers to ensure that the price paid by the government for replenishment spare parts is both fair and reasonable?

Answer: All of the Department's initiatives are designed to lead to fair and reasonable prices for replenishment spare parts; however, there are some key initiatives that are substantially, though not exclusively, directed to buyers and contracting officers. These are: revision of performance evaluation factors to include emphasis on pricing and competition; limiting the award of contracts for items experiencing price increases of 25 percent or more; reemphasizing adherence to established cost and pricing principles; intensifying cost consciousness and determinations of fair and reasonable prices; on-site training on the guidance and price evaluation techniques provided in the Defense Acquisition Regulation, Small Purchase Manual (DAR Manual No. 2); continuing audit and investigation activities; stern disciplinary actions--including reprimand, demotion, and dismissal--for employees who are negligent in their duties; phase-out of the use of spare parts ordering agreements with price redetermination provisions; incentive awards and rewards for performance clearly exceeding rigorous reform standards; and the designation of competition advocates in over 300 major buying locations.

SPARE PARTS PROCUREMENT

QUESTION: What steps does the Navy plan to take to make certain that the procurement history tapes at the Ships Parts Control Center accurately reflect both cost and competition data?

ANSWER: The Navy has developed and is now testing an enhancement to its UICP (Uniform Inventory Control Point) program which performs additional validation and reconciliation of financial and procurement files. This new application, known as FIN/PRO (Financial/Procurement) is scheduled to be implemented in the third quarter of FY 84 and will provide a more intense validation of cost data in both the Contract Status and Contract History Files.

Competition data available in automated files, such as Acquisition Method Codes, are used for reference purposes to alert the buyer to the need to research the competition data contained in contract folders. This data is manually reviewed with each competitive procurement.

The source of the inaccurate competition data cited in a recent GAO report has been identified by the Navy Ships Parts Control Center (SPCC). SPCC has identified the program logic error which led to the inaccurate coding and has determined that this application is also used only for reference purposes and does not affect any statistical or management information.

QUESTION: What steps does the Navy plan to take to ensure that the buyers take advantage of historical information regarding price and competition as required by the Defense Acquisition Regulations in the course of their contract award activities?

ANSWER: The Navy has reemphasized the use of available tools and procedures to maximize the use of procurement history information. Available tools include a real time data retrieval application which enables buyers to check the latest procurement status on any given item. Procedures for documenting price reasonableness include review of purchase history lists which contain both historical prices and sources, and a requirement for written narrative comments on the relationship between the instant price and prior prices. The Navy continues to seek improvements in this area through emphasis on declericalization, ADP improvements, and training.

QUESTION: What steps does the Navy plan to take to make certain that its buyers ensure that the government will be paying a fair and reasonable price for replenishment spare parts?

ANSWER: The Navy is firmly committed to permanent improvements in spare parts pricing and procurement, and has taken the following initiatives:

a. Assigned a flag officer as full time Competition Advocate General of the Navy, and assigned competition advocates at 47 major procurement activities, including both Navy Inventory Control Points, the Aviation Supply Office (ASO) and the Ships Parts Control Center (SPCC).

b. Implemented Project BOSS (Buy Our Spares Smart), a comprehensive Navy-wide program involving the procurement, technical, legal, financial, ADP, and inventory management communities in a coordinated effort to correct recognized problems and to institutionalize the solutions to these problems. Project BOSS encompasses over 100 individual initiatives in all aspects of spare parts pricing and procurement, including requirements determination, breakout, competition, pricing, price surveillance, contract management, methods of procurement, automated data systems, training, and resources.

c. Established, as part of Project BOSS, a value analysis team known as "PRICE FIGHTER," whose mission is to determine the "should cost" intrinsic value of items to be procured, for the purpose of providing the buyer with a baseline for negotiating prices.

QUESTION: What steps does the Navy plan to take to make cost growth containment and competition highly weighted factors in buyer and contracting officer performance appraisals at its procurement centers?

ANSWER: The Naval Supply Systems Command has issued direction to the Navy Field Contracting System, which includes the Navy Inventory Control Points which buy the Navy's replenishment spare parts, requiring that acquisition principles including expanding competition be translated into SES (Senior Executive Service) and MPS (Merit Pay System) objectives; that competition goal achievement be made a management objective for all senior civilian and military

personnel involved in the execution of the acquisition process; that performance evaluations of all personnel substantially involved in the acquisition process, including those who define requirements and perform technical evaluations as well as those who contract for supplies and services, should include emphasis on spare parts pricing, breakout, competition, and value engineering accomplishments; and that these factors be designated as critical elements and significant objectives in applicable individual SES and MPS objectives and as critical performance elements in BPAP (Basic Performance Appraisal Program) performance appraisals.

QUESTION: How does the Navy now secure, account for, store, and handle contract files at its procurement centers?

ANSWER: Active contract files are maintained in a central file library and may be checked out temporarily by contracting personnel using written request forms. The request form, identifying who checked out the file, is retained in the central library until the contract file is returned. After a contract has been completed, it is forwarded to the Navy Federal Records Center (NFRC) in Philadelphia. A record is maintained of each contract file forwarded to NFRC so that it can be recalled if needed. The files are maintained by NFRC until the expiration of the prescribed retention period, after which they are destroyed. The contract files are maintained and closed out in accordance with the Defense Acquisition Regulation Supplement 2, Contract File Maintenance, Closeout, and Disposition.

QUESTION: How many contract files has the Navy been unable to locate during the past year?

ANSWER: Contract files occasionally are not readily available or easily accessible due to movement through various stages of processing or occasional misfiling. A recent GAO report citing missing contract files at the Navy Ships Parts Control Center (SPCC) actually referred to a total of twelve files from a sample of 191, from an audit universe of over 187,000 typical spare parts type contracts, over a three year period. Of the twelve, six were actually beyond the time frame for retention and had been destroyed by the Federal Records Center (FRC), three others had been forwarded to the FRC, and one more was later located at SPCC. Of the two files which have not yet been able to be located, one was a 1980 file and one was a 1982 file. Although a small number of contract files were not immediately available due to being in transit from one work station to another, there were none that could not ultimately be accounted for during the past year.

QUESTION: What procedure, if any, does the Navy employ to validate data entered onto procurement history tapes at its procurement centers?

ANSWER: Under the new Financial/Procurement (FIN/PRO) application in the Navy Uniform Inventory Control Point (UICP) program, which is now in the testing phase and which is scheduled for implementation in the third quarter of FY 84, all feasible validations are performed upon data entry. Content and accuracy checks as well as field size cross checks are employed. Validations required under UICP procedures have

been combined and are positioned at the beginning of a transaction in order to preclude data entry on one file and rejection or purge from another.

QUESTION: How does the Navy employ the data contained in the procurement center automated procurement history tapes?

ANSWER: Procurement history information is available both through purchase worksheets and through real time data retrievals from automated procurement history files. The automated procurement history file is employed in two major ways:

- a. It is provided to buyers to help identify sources of supply and to help determine price reasonableness;
- b. New procurement data is analyzed and compared with historical data through a price analysis program to determine "out-of-tolerance" prices.

QUESTION: What directions does the Navy give its buyers concerning the need to review past price and competition information before they complete the award of a new contract for a replenishment spare parts purchase?

ANSWER: During training all buyers are provided formal and informal instruction on pricing and competition. In addition, buyers are provided with purchase worksheets which incorporate pricing and competition guidance and they are indoctrinated in the use of real time data retrieval to support their procurements. As part of the Navy's Project BOSS (Buy Our Spares Smart), instructions have been provided to all buyers emphasizing the need to obtain and review current procurement history information prior to making an award.

QUESTION: What data base(s) has the Navy relied upon for the statistics contained in its testimony to Congress regarding spare parts cost growth and competition?

ANSWER: Procurement statistics and management information are maintained as part of the Navy Procurement Management Reporting System (PMRS), which is managed by the Naval Supply Systems Command as the functional and resources manager for Navy contract management. The data collection system for the PMRS is independent of in-house management information systems at individual field activities. Thus the data coding errors cited in a recent GAO report as causing inaccurate competition data at the Ships Parts Control Center (SPCC) have not affected the data in the PMRS. The PMRS is the primary basis for Navy contracting statistics provided to Navy management, OSD, and the Congress. Additional data may occasionally be obtained through regular or one-time reports from other offices as required.

QUESTION: What steps has the Navy taken to make certain that the data bases are accurate and valid before including statistics derived from them in Congressional testimony?

ANSWER: Information provided by the Navy to the Congress in any form, whether in prepared statements, official testimony, responses to questions for the record, or responses to any other form of Congressional inquiry, are thoroughly

screened for accuracy and responsiveness at various management levels and are approved by responsible officials with the authority to represent Navy policy.

Question 1: What steps are you taking to make certain that data recorded on automated procurement history tapes at DLA procurement centers is accurate and complete?

Answer 1: The Defense Logistics Agency (DLA) is highly automated through its use of the Standard Automated Material Management System (SAMMS). SAMMS consists of supply, financial, technical and procurement subsystems which are completely integrated and serve as validation checks and balances within the system as a whole. For example, when a requirement is generated for a particular item with a specific quantity for a specific destination, this requirement is screened against all other subsystems to extract pertinent data both current and historical. This establishes an initial record against which all further actions on the individual requirement must match through the completion of the procurement, delivery and payment of the item. Inconsistencies in any of the records will create a rejection from the system which will require correction before further actions within the system can be taken. When a contract is awarded, the award data is entered into SAMMS which then subjects the data to the validation process. After that all data is validated, the system prints the award portion of the contract and updates all pertinent subsystems. Thus, the hardcopy contract award is completely consistent with all recorded data within SAMMS.

Question 2: Please describe the procedures followed by your procurement centers to account for, secure, store, and handle contract files.

Answer 2: All contract award data is entered into the SAMMS system as outlined in 1 above. After the validation and establishment of the automated system file, the hardcopy contract file is completed, edited and signed by the contracting officer. Distribution is made to contractors, payment offices, contract administration offices and, where applicable, to customers or receiving activities. The original contract file is retained in an active contract file repository until completion. A contract file is completed when final delivery is accomplished and final payment is made. Notification of these actions is accomplished through receipt of material inspection and receiving reports, plus a computer generated notice of final payment action. Once these are accomplished, files are reviewed to ensure other administrative actions are complete. If all actions are complete, the files are moved to an inactive status. The intensity of review varies with whether or not the contract is a large purchase (over \$25,000) or a small purchase (under \$25,000). However, the automated portion of the status is the same for either. Once a file is completed and in an inactive status, storage and handling regulations prescribe the following:

- a. Small purchases - retain for three years after completion after which the file may be destroyed.

b. Large purchases - retain for three years after which the file may be transferred to a federal records holding center for an additional three years retention. After a total of six years after completion, the file may be destroyed.

In all instances, whether the file is in active, inactive or federal records holding status, it is available on call by authorized personnel. Our major purchasing activities use a central files holding and charge-out system for files held within. Once a file is transferred to a federal records holding area, a file locator system is maintained to identify where the file is until it is destroyed.

Question 3: How many contract files were your procurement centers unable to locate last year?

Answer 3: No records are kept as to how many contracts may not be located in any given period of time. DLA processes 3.5 million procurement actions per year and has no significant problems with file location. Even if a hardcopy file is lost, our automated system and other file distribution locations provide backup for file recreation.

Question 4: Please explain why the Defense Electronic Supply Center automated procurement history tapes do not include data from closed and completed contracts.

Answer 4: The SAMMS system is designed to maintain a history file on the last six most recent buys by National Stock Number (NSN) or part number if no NSN exists. The history record identifies the contract, contractor, date of purchase, quantity, and unit price paid. As new buys are made the oldest drops from the history record and is replaced by the new buy. In addition, the SAMMS system maintains a closed contract history file that retains records of all previous DLA buys for a period of two years (24 calendar months). Records drop from the closed contract history 24 months after the date the contract was closed (all items delivered and paid in full). It should be noted that all DESC buys are recorded in DESC history files automatically. Past DESC buy data and any data which was transferred from the Services, is recorded and made available to the buyer on trailer sheets furnished with each purchase request issued. The only possible way that DESC files would not include data on closed and completed contracts would be a situation where an item was assigned to DESC from previous management by the Military Services and the Services did not provide procurement history data when transferred.

Question 5: How do your contracting officers and buyers determine whether a price a contractor presents to them for a replenishment spare parts procurement is fair and reasonable if they do not have a complete, accurate, and available automated data base describing past purchases?

Answer 5: Our automated system, SAMMS, provides contracting officers and buyers with complete, accurate, and available automated data of past purchases as a result of the internal

system validated checks discussed in question 1. However, in the remote event an erroneous award date or price passed these checks, a post-award correction would be made through processing of a contract modification. This action would automatically update the purchase file and be reflected on the purchase history provided to the buyer for subsequent buys. In as much as the current competition rate for awards by our spare parts buying activities is 66 percent (first quarter of FY 1984), purchase history information is generally used as a point of reference. The fact that competition was received validates the reasonableness of price when the competition was within a reasonable range. However, in the minority of awards where price competition is not achieved, information on the last six procurements is available to the buyer in support of the price reasonableness determination. Price analysis techniques employed in such instances normally include comparisons with prior contract prices. The analysis includes appropriate adjustments to these prices for differences in quantity, F.O.B., etc., and due to price escalation where relevant. In appropriate instances, analyses of cost or pricing data or information substantiating comparability of the contractor's price with prices to its commercial customers are performed, e.g., where the dollar value of the procurement warrants such additional documentation and review efforts.

Question 6: What actions are you taking to make certain that your contracting officers and buyers do, in fact, take appropriate steps to ensure that the prices the government pays for replenishment spare parts are fair and reasonable?

Answer 6: Preaward pricing assistance is provided in appropriate circumstances by Center Cost and Price Analysis personnel. This can include input by field pricing, technical and audit elements. Upon completion of the price review process, the proposed award is subjected to internal review procedures established at specified dollar thresholds for various types of procurements made by the Center. These review procedures specify various levels of supervisory approval, review by the Center Contract Review Office, briefing and approval from the Center's Senior Acquisition Official, and additional DLA level reviews as applicable.

Question 7: What steps are you taking to make certain that success in cost growth containment and in achieving competition in government purchases are highly weighted factors in your contracting officers' and buyers' annual performance appraisals?

Answer 7: On 29 August 1983, the Secretary of Defense directed that logistics managers' performance standards include competition and pricing as one of the major rating elements. Under the DLA Management by Objectives Program, this has been established as a goal to be completed by June 1984.

Question 8: What steps did you take to make certain that the data base(s) you relied upon in preparation of Congressional testimony containing statistics on spare parts cost growth and

spare parts procurement competition were valid, complete, and accurate?

Answer 8: The data used in compiling statistics for the Defense Logistics Agency is automatically reported through the management data reporting system. These data are derived directly from actual input to our automated System (SAMMS) and is validated as outlined in question 1. This reflects actual data from the contracts awarded without manual edit or adjustment. As a result, the data presented by DLA is accurate and not based upon estimates or projections.

Question 9: Please describe with specificity the steps by which the Defense Logistics Agency derived the statistics you have presented to this Committee on spare parts procurement competition and cost growth, including identification of the data base(s) DLA relied upon in obtaining these statistics.

Answer 9: Competition statistics are developed using the formulas prescribed by OSD. However, although the DoD system prescribes use of rounded values, DLA reports are based upon actual values from its automated data base as outlined in questions 1 and 8. Also, the base used excludes awards using intragovernmental purchases, foreign military sales, educational and other nonprofit institutions, Section 8a awards, and public utility payments, etc., where competition requirements are not applicable. Consequently, DLA data is not skewed by these factors. At time of award of any given procurement action, all related data must be coded into the automated system which accumulates, compiles and reports the data on a monthly, quarterly and annual basis. The reports are tracked constantly at the Headquarters level and are subjected to regular management reviews.

PROCUREMENT HISTORY TAPES

QUESTION: What steps are you taking to make certain that data on the automated procurement history tapes at your procurement center is complete, accurate and valid?

ANSWER: In our system, we insure data integrity by capturing data at the initial source of the information with input by those elements most knowledgeable of its validity. In addition, increased use of system edits and validation criteria to detect and require correction of data prior to acceptance into the data base reinforces data accuracy, validity and completeness.

Under our standard system the majority of the replenishment buys are automated starting with the materiel management functions, including generation of a purchase request, through the creation of the contractual agreement in the Procurement Automated Data and Document System (PADDS). This broad use of automation eliminates the need for manual data compilation as well as minimizes the chance for error. The increased use of the PADDS should significantly improve the accuracy of the data base since the system that creates the contract document also feeds the data base simultaneously thus the contract and file data are the same. Moreover, PADDS is an interactive system which performs edit and validation on-line;

accordingly, the system detects inappropriate data and corrects the data prior to generation of the contract document and acceptance of data into the data base.

Further, as an extra measure of assurance of data validity, HQ DARCOM is in the process of increasing the number of Procurement Management Reviews (PMRs) performed by headquarters level personnel at our field activities and has included as part of the areas to be reviewed the verification of the accuracy and completeness of the data base at the procurement centers.

REPLENISHMENT SPARES

QUESTION: What steps are you taking to ensure that your contracting officers and buyers take appropriate action to make certain that the prices the government pays for replenishment spare parts is fair and reasonable?

ANSWER: The preferred method of obtaining fair and reasonable prices is by competition. DARCOM has a very active program aimed at increasing competition. We are not buying any spares sole source in FY 84 until the item has been screened to assure it cannot be competed. If an item cannot be competed, the buyer must use some other method of determining fair and reasonable prices, such as cost or price analysis or an independent government estimate. Any price increase of 25 percent or more in 12 months or less will call for a reconciliation of the difference in the two prices.

CONTRACT FILES

QUESTION: Please describe the procedures employed at your procurement centers to secure, handle, store, and account for contract files.

ANSWER: Contract files are stored in a central location. When contract files are taken from the storage area, the removal is noted in a log book.

LOST CONTRACT FILES

QUESTION: How many contract files were you unable to locate during the past year?

ANSWER: It is not known how often we are unable to locate a given contract file. Lost or misplaced files are not considered to be a major problem.

FAIR PRICE FOR REPLENISHMENT SPARES

QUESTION: How can your contracting officers and buyers make certain that the government is paying a fair and reasonable price for replenishment spare parts if they do not have ready access to an accurate, complete, and valid automated data base containing the

procurement history of the part in question, including price and competition information?

ANSWER: Buyers at our major buying commands do have access to an accurate and complete automated data base. The purchase request shows the last price paid, the quantity, the date, delivery point, and the name of the vendor. Available through a computer terminal is the complete procurement history of an item for the past three years and selected data is retained and available indefinitely.

SPARE PARTS COST GROWTH

QUESTION: What steps did you take to make certain that the data base(s) you relied upon in preparation of Congressional testimony concerning spare parts cost growth and procurement competition were valid, accurate, and complete?

ANSWER: The Army maintains extensive computer data bases to track the management of spare parts costs and competition. Specific data used in the testimony was gathered from scans of computerized data bases and manual retrieval of data. It is the Army's belief that the data base(s) used in preparation for Congressional testimony are in fact complete and valid. Since hundreds of thousands of transactions are recorded on a daily basis in support of these data bases, the Army maintains various quality control checks and edits to insure that errors and inaccuracies are minimized. No extraordinary steps were taken, beyond those normally expected for important testimony, to validate the data.

While only data on Procurement competition was specifically provided by the Army in this testimony, similar procedures are normally used in tracking and reporting cost growth on spares.

QUESTION: Please describe for this Committee with specificity the steps by which the Department of the Army derived the statistics on spare parts cost growth and spare parts procurement competition to which the Department has testified, including specific identification of the data base(s) upon which the Department relied in preparation of its testimony.

ANSWER: The data used in testimony can be divided into two categories:

The first category involves that data which resulted from extensive, labor intensive, reviews and generation of data through manual means. The Army Buying Commands expended significant resources in this detailed scrutiny of prices paid and reviewed existing contract and pricing files. These reviews involved obtaining the contractual files from file repositories. The data obtained through these efforts was updated and summarized manually.

The second category involves queries of the Command Commodity Standard System (CCSS) data base which is the primary system for Army commodity management. Input to this system is through a combination of automated and manual actions. For example, updates to the CCSS data file may come from the automatic generation of data through a computerized contracts generations system, the Procurement Automated Document and Data System (PADDS), or from the data entered by procurement personnel on various data input forms which are subsequently keypunched into the data base.

The prime source of data was the Command Commodity Standard System (CCSS). The data gathered from this system was augmented by data gathered by manual means.

While only data on Procurement competition was specifically provided by the Army in this testimony, similar procedures are normally used in tracking and reporting cost growth on spares.

AUTOMATED PROCUREMENT HISTORY TAPES

QUESTION: What steps have you taken to ensure that the data recorded on the Air Force procurement centers' automated procurement history tapes is, in fact, valid, accurate, and complete?

ANSWER: Although there are various data processing checks to validate the input of data into our automated systems, it is impossible to insure 100 percent of the inputs to any data system. The absolute accuracy of the automated Procurement History Record (PHR) is not required or necessarily relied on by the Contracting Officer (CO). The primary function of the PHR is to identify past contract/actions. Because past history and performance is important, the CO uses the PHR to locate the last one or more of the actual contracts in order to verify the firms solicited, the actual respondents, the item quantity sought, the prices offered vs negotiated, any quantity/price breaks, and the delivery schedule. While reviewing the previous contract(s), the CO can also ascertain current performance on the contract, i.e., late deliveries, rejection of work, etc. Because there is much more detailed information available by reviewing the actual contract file(s), deficiencies in the PHR have only a limited impact. In summary, the PHR gives the CO a start, but not the whole story.

REPLENISHMENT SPARE PARTS

QUESTION: What steps have you taken to ensure that the Air Force's contracting officers and buyers make certain that the government is paying a fair and reasonable price for the replenishment spare parts it is purchasing?

ANSWER: The Air Force has a vigorous program to ensure fair pricing. The basic determination of whether we are paying a fair and reasonable price for an item is a subjective determination made by the contracting officer (CO). The CO employs various tools to assist him in rendering this judgement. Depending on the dollar value of the contract action, the CO may have Price Analyst support, Defense Contract Audit Agency (DCAA) audits, Defense Contract Administrative Services (DCAS) field reports, Certified Cost and Pricing data from the contractor, historical data from previous purchases for comparison, local engineering support for manhour/material/special process information, catalog prices for comparable/similar items, and various publications on industrial labor rates/inflation factors/processing times, etc. Added to these are the CO's own education, experience and training. To ensure our COs are making sound judgements we have Contract Review Committees at each buying center composed of our most experienced professionals. These people review the high dollar contracting actions both before solicitation and prior to award. An evaluation of price reasonableness is a part of the Contract Review Committee analysis. Additionally, to improve our low dollar pricing effectiveness and to assist our buyers, we have recently established a

"value analysis" function as part of our Competition Advocate organization in each of our major buying activities. This activity develops detailed "should cost" prices on selected low dollar value spare parts to assist the buyer in obtaining a fair price. Deficiencies, such as unsupported pricing approvals, are remedied through training, management attention, workload transfers, additional monitoring, etc. Additional oversight and feedback are provided through Inspector General inspections as well as higher headquarters staff reviews. We also have a Zero-Overpricing Program which encourages anyone in the Air Force who believes an item is overpriced to challenge that price.

STORING, SECURING AND HANDLING CONTRACT FILES

QUESTION: Please describe the procedures your procurement centers follow for accounting for, storing, securing and handling contract files.

ANSWER: Generally, contract files are initiated, developed, and maintained up through contract award by the contracting officer (CO). After contract award the contract file is maintained in the contract library within the contracting activity. The contract library is a controlled access area with assigned personnel to maintain, control and provide security. Upon contract completion, including final payments, inspection and acceptance of all goods or services, and resolution of any claims or disputes, the contract file is sent to storage. In storage, the contract file is held for a number of years depending on the contract type and dollar amount. The time periods for holding contract files are established in the Defense Acquisition Regulation (DAR). At the completion of the storage period the contract file is destroyed. Some classified contract files and those of continuing, large scale activity (such as major programs and modifications) are generally retained by the CO in safes or files in his/her workcenter. With the exception of physical location, all the other procedures remain the same.

CONTRACT FILES

QUESTION: How many contract files were you unable to locate during the past year?

ANSWER: We cannot answer this question as we do not accumulate such information. However, lost contract files are generally not a major problem as principal documents and associated data are available from various automated systems and other organizations (such as from the contract administration activity). Although reconstructing a contract file in this fashion can be a lengthy process, it nevertheless can be accomplished, if required.

SPARE PARTS COST GROWTH

QUESTION: What steps did the Air Force take to ensure that the data base(s) upon which the Department relied in preparing Congressional testimony regarding spare parts cost growth and

competition in spare parts procurement were, in fact, accurate, valid and complete?

ANSWER: The specific testimony referred to cannot be identified. The Air Force Logistics Command's Acquisition and Due In System (JO41) is the data source from which we have previously provided information on spare parts cost growth and competition in spare parts procurement. Considerable efforts are expended to ensure the accuracy of JO41 data.

The accuracy of the data in the system is dependent on both valid and timely input. Thus, the following measures have been established:

a. Dollar Balancing Procedure - This procedure allows the system to total prices for each line item to ensure it equals the total price on the contract document.

b. Unit Price Discrepancy Listing - Input of unit price data that is 20% of the stock list price is not posted in the system for 10 processing cycles. This permits additional screening on unit price increases as data is input to post award segment of the system.

c. System Validation Criteria - Data Element Configuration Control Edits and configuration checks on National Stock Numbers have been established to further ensure accuracy of data input in JO41..

d. Spare Parts Price Variation Report - JO41 presently interfaces with other systems to investigate the validity of new unit prices against the latest unit price paid.

Further efforts to ensure the accuracy of the JO41 data base are ongoing.

STATISTICS REGARDING SPARE PARTS COST GROWTH

QUESTION: Please describe with specificity the steps the Department of the Air Force followed to derive the statistics which were presented in Congressional testimony regarding spare parts cost growth and spare parts procurement competition levels, including specific identification of the data base(s) which were the original source(s) of this information.

ANSWER: The specific testimony referred to cannot be identified. In general, information on cost growth is derived from direct comparisons of historical unit prices paid for spare parts. Information on spare parts competition levels is obtained directly from the "Total Fiscal Year Procurement Report" for replenishment spare parts (Report Control Symbol DD-DR&E (Q&SA) 714). This reports the total numbers of items and dollar amounts involved in spare parts acquisitions, and the percentage of items and dollars competed.

The original source data base for both kinds of information is the Air Force Logistics Command's Acquisition and Due In System (JO41), which contains information on each contract action issued by AFLC central purchasing activities.

SUBCOMMITTEE RECESS

Senator RUDMAN. The subcommittee will now stand in recess until March 20, at 10 a.m., when we will receive testimony from nondepartmental witnesses on the 1985 Department of Defense budget.

The subcommittee now is in recess.

[Whereupon, at 10:44 a.m., Thursday, March 15, the subcommittee was recessed, to reconvene at 10 a.m., March 20, 1984.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

TUESDAY, MARCH 27, 1984

**U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.**

The subcommittee met at 10:15 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, D'Amato, and Rudman.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE NAVY

NAVAL OPERATIONS FOR AIR WARFARE

**STATEMENT OF VICE ADMIRAL R. F. SCHOULTZ, DEPUTY CHIEF OF
NAVAL OPERATIONS FOR AIR WARFARE**

AIRCRAFT RESEARCH, DEVELOPMENT, AND ACQUISITION

BUDGET REQUEST

Senator STEVENS. This is the time scheduled to continue our review of the Navy's original 1985 budget request. Today we will focus on the proposed research, development, and acquisition request for the Navy and the Marine Corps aircraft and associated support equipment. We will consider the Department's request for specific weapons systems later.

The original request was for \$11.5 billion for aircraft procurement, \$1.1 billion for aviation related equipment, and about \$600 million for major aviation R&D initiatives. For procurement, this is an increase of \$1.7 billion over last year, an increase of nearly 16 percent or 9 percent in real growth.

While the committee has not received the details of the recently proposed \$12 billion reduction in the request before this committee, I hope we can develop an understanding of the likely adjustments that will be proposed for Naval aviation this morning.

NAVAL AVIATION REQUIREMENTS

In any event, this year's request is critical for Naval aviation. It continues procurement of aircraft needed for the 13th and 14th Air Wings for the two additional carriers that will be entering service in 1987. This is the last year to fund aircraft deliveries for 1987. The request also proposes initiation of further improvements to a

number of in-production aircraft, notably the F-14, rather than initiation of more costly development programs for totally new aircraft.

INTRODUCTION OF ASSOCIATES

We shall return to these issues, but first I would like to welcome today's witnesses:

Vice Admiral Schoultz, the Deputy Chief of Naval Operations for Air Warfare; Vice Admiral Busey, Commander, Naval Air Systems Command; and Lieutenant General Fitch, Deputy Chief of Staff for Aviation for the Marine Corps. Rear Admiral Cooper is with us also this morning.

Gentleman, we will put your statements in the record, and ask that you summarize those statements. We will have questions when you are finished.

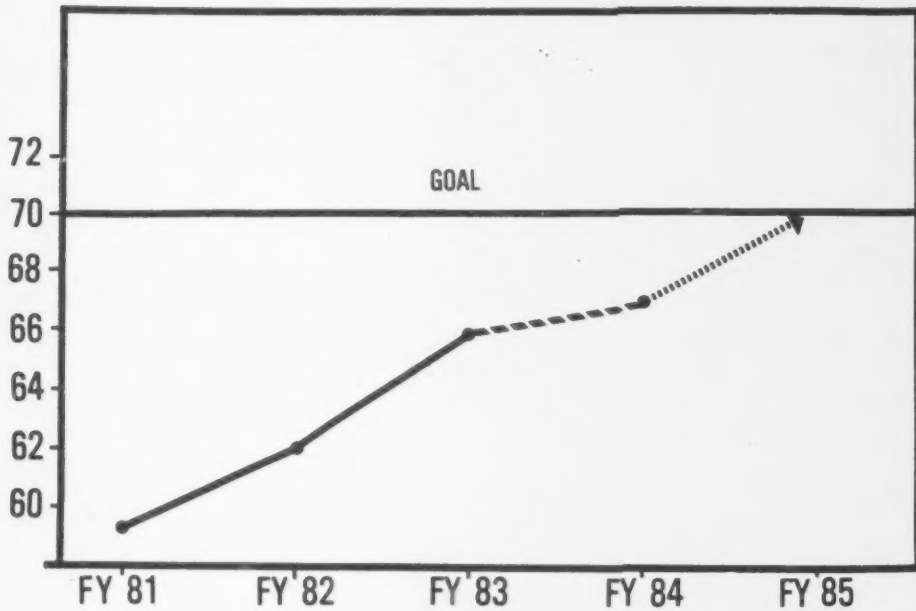
Admiral Schoultz, would you like to go first?

Admiral SCHOULTZ. Thank you, Mr. Chairman, for adding our statements. I think you have introduced all of the players, so I will start right off with some brief comments. I am going to cover some key programs, and then we will be prepared to answer any specific questions on any or all programs.

NAVY/MARINE CORPS AIR TEAM

Actually, the events of the last year have shown to the country and the world the importance of the Navy/Marine Corps Air Team. We have proven our vitality by meeting all of the national commitments around the world, both in Grenada and Lebanon, the Indian Ocean, and in Central America. We think we are pretty good now, and we also think that we are getting better.

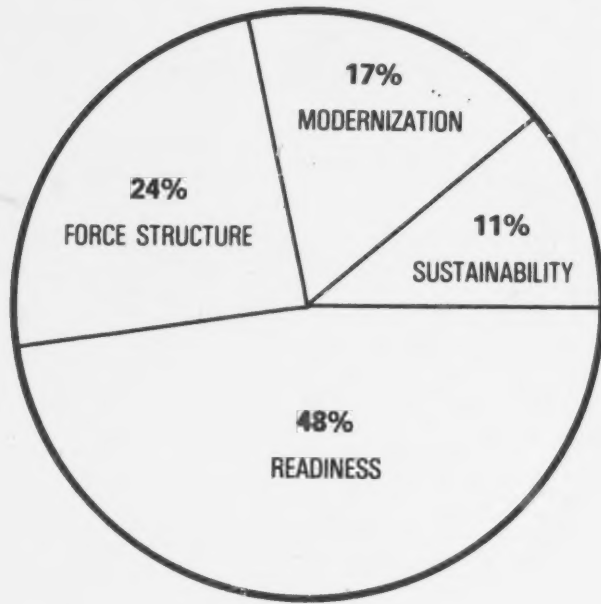
TOTAL FORCE MATERIEL READINESS (MC)



VU GRAPH 1

AIRCRAFT MATERIEL READINESS

There are several key areas where we are getting better, and one of them is in the materiel readiness of aircraft. The mission capability readiness rate is improving. It was 66.5 percent in 1983, and we are predicting 67 percent in 1984. We predict 70 percent mission capable rate in 1985.

**OP-05 FY85 TOA****VU GRAPH 2****READINESS BREAKDOWN**

We have been investing our money, we think in the proper way. We are investing in readiness. Our investments in readiness are approaching 50 percent, with 24 percent of our aviation assets in the force structure, 17 percent in modernization, which includes RDT&E, weapons mods and improvements, and carrier upgrades. In sustainability, 11 percent, which is in ordnance, O&MN and the reserve. Then, of course, readiness, which includes the flying hour program, primarily, and spare parts, depot level repair, and that sort of thing.

We appreciate the support that we have gotten from this committee in keeping that up, and it will improve as time goes by.

We are also modernizing as we expand to the 13th and the 14th Air Wings, as you indicated. The modernization of our equipment was done because the threat was increasing, and our force is aging. We have an 11.7 year average for all of our tactical aircraft currently.

The F/A-18 and AV-8B address both of these problems, modernization and responding to the threat. I will cover the specific aircraft and R&D programs as we go along.

AVIATION SAFETY

RECENT YEAR COMPARISON

	CALENDAR YEARS		
	1981	1982	1983
MISHAPS	95	90	88
RATE/100,000 FLT HRS	4.83	4.46	4.33

VU GRAPH 3

NAVAL AVIATION SAFETY RECORD

There is some good news. Safety, I think, is our best good news story; 1983 was the safest year that we have had in Naval Aviation. It was the third consecutive year of a drop in rate, to 4.33 major mishaps per 100,000 flight hours.

That doesn't sound too significant until you look back, and 10 years ago it was 8.6, 20 years ago it was 14.5, and 30 years ago it was 51.2 accidents per 100,000 flight hours. So we are getting better all the time, and we are looking for a 4 rate this year, in 1984. In 1984, to date, we are 2.75, so it looks like we are going to make our goal.

AIR WARFARE CAPABILITIES

The budget request for 1985 is designed to strengthen our air warfare capabilities. We always have the job of balancing competing priorities with fiscal constraints. Affordability is a key element in all of our deliberations. We think that we have the cost growth of our programs under control, and we are going to continue to stress that in all of our procurement efforts.

The requirements are building force levels. The 13th Air Wing, as you mentioned, stands up this year, and the 14th in 1987.

The Marine Air Wings are modernizing. They have the AV-8B and F/A-18 to improve their close air support capability.

RESERVE HORIZONTAL INTEGRATION

Reverse horizontal integration is moving right along. We are moving into the A-7E's. The first Reserve F/A-18 squadron is standing up, and is training now. The E-2C is our latest airborne early warning aircraft. There is one Reserve squadron in Norfolk and another one will stand up in 1988. One F-14 squadron will stand up in the Reserves this year. The SH-2, LAMPS-I helicopter is being taken over by the Reserves as the FFG-7's move to the Re-

serves. So we are doing a lot in that area. The Reserve Air Wing will man the 15th carrier.

We are aware of the concerns of this committee, and the entire Congress about the numbers of aircraft lines that are open. We have 16 open in 1985, and we are going to go to 14 in 1986. We will go to 12 in 1987, and 11 in 1989. We are working to reduce that all the time.

AIR WING MIX

CURRENT				NOTIONAL	
24 F-14 }	24	FIGHTERS	38	{	20 F-14
24 A-7 }	34	ATTACK	38	{	18 F/A-18
10 A-6 }				{	20 A-6
4 KA-6D					ARS
10 S-3 }	16	ASW	18	{	10 S-3
6 SH-3H }				{	8 CV ASW HELO
4 E-2C }	8	AEW/ESM/EW	10	{	5 E-2C
4 EA-6B }				{	5 EA-6B
86 ACFT					86 ACFT

- UNDER FINAL REVIEW
- CHANGES WILL BE EVOLUTIONARY
- AT SEA EFFECTIVENESS STUDIES
 - KENNEDY (A6, F14)
 - CONSTELLATION (F/A 18, A6, F14)
 - CORAL SEA (F/A 18, A6)

VU GRAPH 4

NEW AIR WING COMPOSITION

The introduction of the F/A-18, which is a strike fighter, has driven us to look at a new air wing composition by reviewing our current air wing composition. This slide compares the old to the new air wing, one which gives us increased flexibility.

We are experimenting with various aircraft mixes. We have the John F. Kennedy in the Mediterranean today with F-14's with the A-6 as the primary strike aircraft. The Constellation is standing up on the West Coast with F-14's, A-6's and F/A-18's. The Midway and the Coral Sea, the two older carriers, will

stand up with four squadrons of F/A-18's and an A-6 squadron each. They will all have their normal support mix of airplanes.

The changes to this air wing, of course, will be evolutionary. The final determination of when and how we are going to do this is still pending. But these are the early results of our study, and I thought that you would be interested in that.

Senator STEVENS. I don't understand how it adds up to 86 aircraft, when you have increased to 38, 38, 18, and 10.

Admiral SCHULTZ. You are using one aircraft for dual missions, sir. It is part of the strike fighter concept. These changes in the air wing will be evolutionary, and they won't really start to make an effect on our procurement until 1986, which we are working on now.



VU GRAPH 5

F-14 TOMCAT

Coming to the specific aircraft that we were asked to discuss, I would like to talk about F-14 Tomcat, which is our primary fleet air defense fighter. This aircraft can carry six Phoenix, or as shown in this slide, four Sparrows and four Sidewinders.

It is particularly good at the outer-air battle mission, where it can stand off 200 to 250 miles from the battle group and can handle a Backfire inbound. We can sight him at 110 miles and shoot at him. The system will allow us to track 24 targets at one time, and shoot at any one of a selected six. We decided that this

aircraft is such a capable aircraft, and so meaningful to us that we will modernize it and not build a new aircraft.

F-14D

- **F 110 GENERAL ELECTRIC ENGINE**
 - OPERABILITY
 - RELIABILITY/MAINTENANCE
 - PERFORMANCE
- **AVIONICS**
 - DIGITAL
 - FUTURE INTEGRATION
 - COMMONALITY
- **RADAR**
 - ECCM
 - IRST

VU GRAPH 6

IMPROVEMENTS IN F-14

The major improvements are shown on this next slide. Primarily, the GE-F-110 engine, which we derived from the Air Force competition. We plan to digitalized the avionics. This aircraft and the A-6 are the only two analog equipped aircraft built in the Free World that we can find. We plan to digitalize the avionics so that we can install the ASPJ airborne self-protection jammer, the JTIDS, the joint tactical information distribution system, the AMRAAM missile, ALR-67.

All of this equipment, if put into an analog aircraft, would require them to be hard wired. If you install into a digitalized system, you can just plug them in.

There will be much commonality between this aircraft and the F/A-18, and a lot of the technology from the F-15 will also be included. The radar will be improved so that it can handle the ECM, the electronics counter-measures. It will also follow the Air Force on the IRST, which is infrared search and track capability, which will give it a passive detection capability.



F-14A TOMCAT

AIRFRAME

GRUMMAN AEROSPACE CORP.
BETHPAGE, L.I., N.Y.

MANUFACTURERS

ENGINE

UNITED AIRCRAFT CORP.
PRATT & WHITNEY DIV.
E. HARTFORD, CONN.

QUANTITY	FY 85 REQUEST		UNIT COST
24	WEAPONS SYSTEM COST	\$ 976.9 M	
	RECURRING FLYAWAY NON RECUR/ANCILLARY SUPPORT ADV PROC (PRIOR YR) ADV PROC (CURR YR)	(\$ 785.8 M) 30.9 149.0 -178.8 190.0	\$ 32.7 M
	INITIAL SPARES	\$ 8.9 M	RECURRING FYAWAY
TOTAL PROCUREMENT COST		\$ 985.8 M	

PROGRAM STATUS

INVENTORY 1 JAN 84	FUNDED & UNDELIVERED	PROCUREMENT COST THRU BUDGET YR
410	56	\$ 12,390.6 M

VU GRAPH 7

AIRCRAFT COSTS

We have requested \$976 million for 24 aircraft, and \$8.6 for initial spares. The recurring flyaway unit cost of this aircraft is \$32.2 million.

A-6E INTRUDER



- All Weather Day/Night Medium Attack Aircraft
- Target Recognition Attack Multisensor (TRAM)

VU GRAPH 8

IMPROVEMENT OF A-6E INTRUDER

The next aircraft is the A-6E Intruder, which is a medium attack, all-weather, day/night, long-range attack aircraft. Its primary missions are war at sea, power projection, and deep interdiction. The aircraft has been improved over its lifetime. It has a multi-mode high speed computer. It has an inertial navigation system. It has something called TRAM, which is Target Recognition and Attack Multi-sensor, which is really just a forward-looking infra-red [FLIR] and a laser tracker.

A-6

- **IMPROVED WEAPON SYSTEM PERFORMANCE**
 - HIGH RESOLUTION DOPPLER BEAM SHARPENED RADAR
 - AIR-TO-AIR CAPABILITY
- **IMPROVED RELIABILITY/MAINTAINABILITY**
 - DIGITAL AVIONICS (OFF-THE-SHELF)
 - NEW ENGINE OFF-THE-SHELF)
- **INCREASED SURVIVABILITY**
 - FIRE/EXPLOSION SUPPRESSION

VU GRAPH 9

UPGRADING OF AIRCRAFT

We are going to continue to upgrade this aircraft next year, and in the ensuing years. We intend to do this, within the affordability range. We hope to include a new engine, which will be competed. We will put digital avionics in this aircraft, using the F/A-18 and F-14 common structure, and do some maintainability, reliability, and survivability improvements, which we need in this aircraft, which has a 1960's engineering level.



A-6E INTRUDER

AIRFRAME
GRUMMAN AEROSPACE CORP.
BETHPAGE, L. I., N.Y.

MANUFACTURERS

ENGINE
UNITED AIRCRAFT CORP.
PRATT & WHITNEY DIV.
E. HARTFORD, CONN.

QUANTITY	FY 85 REQUEST		UNIT COST
6	WEAPONS SYSTEM COST		\$ 214.6 M
	RECURRING FLYAWAY	\$ 143.6 M	\$ 23.9 M
	NON RECUR/ANCILLARY	20.3	
	SUPPORT	61.7	
	ADV PROC (PRIOR YR)	-11.0	
	ADV PROC (CURR YR)	-	
	INITIAL SPARES	\$ 43.3 M	
TOTAL PROCUREMENT COST		\$ 257.9 M	

PROGRAM STATUS		
INVENTORY 1 JAN 84	FUNDED & UNDELIVERED	PROCUREMENT COST THRU BUDGET YR
346	23	\$ 2,760.4 M

VU GRAPH 10

AIRCRAFT COSTS

We requested \$214 million for six of these aircraft, with recurring flyaway cost of \$23 million a piece.

F/A-18 HORNET

- **Strike Fighter: Interdiction, Close Air Support, Fighter Escort, Reconnaissance**
- **Complements Fleet Air Defense**

VU GRAPH 11

MULTIMISSION CAPABILITY

The next aircraft that we want to discuss is our F/A-18 Hornet strike fighter. The multimission capability, we feel, has really been money well spent. It has proven reliable, maintainable, and survivable. We are running 11 to 12 direct man-hours per flight hour, as opposed to some of our older aircraft in the 57 to 60 range.

We have 55,000 hours of operational flying in this aircraft with only one accident, which is an amazing record when you look at the introduction of the older aircraft. It is in its third year of operations. We now have three Navy aircraft squadrons and three Marine aircraft squadrons stood up. The Marines stood up first. We have one Navy squadron training, and one Reserve squadron training at this time.

The procurement profile shown on this chart reflects the necessary increases as the F-4's and the A-7's retire from the active fleet.

F/A-18 PROCUREMENT PROFILE

PROCUREMENT YEARS

	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89
● USN/USMC	9	25	60	63	84	84	84	102	120	120	120
● CANADA			18	24	24	25	24	23			
● AUSTRALIA					18	17	17	15	8		
● SPAIN						9	21	36	6		
● SPANISH OPTION									12		
● PROJECTED									18	36	36
TOTAL	9	25	78	87	126	135	146	176	164	156	156

☐ FIRM SALES

VU GRAPH 12

FOREIGN MILITARY SALES

Foreign military sales have been proof of the capability of this aircraft, as recognized by the countries shown on the chart. There are other countries that are negotiating for this aircraft. We expect future growth in foreign military sales. The foreign military sales benefit to the Navy has been \$1.6 billion.



F/A-18 HORNET

AIRFRAME
McDONNELL DOUGLAS CORP.
ST. LOUIS, MO.

MANUFACTURERS

ENGINE
GENERAL ELECTRIC CO.
WEST LYNN, MASS.

QUANTITY	FY 85 REQUEST		UNIT COST
84	WEAPONS SYSTEM COST		\$ 2,686.0 M
	RECURRING FLYAWAY	\$ 1,767.0 M	\$ 21.0 M
	NON RECUR/ANCILLARY	203.1	
	SUPPORT	596.4	
	ADV PROC (PRIOR YR)	-218.4	
	ADV PROC (CURR YR)	337.9	
	INITIAL SPARES	\$ 111.6 M	
TOTAL PROCUREMENT COST		\$ 2,797.6 M	

INVENTORY
1 JAN 84

119

**FUNDED &
UNDELIVERED**

215

PROGRAM STATUS

**PROCUREMENT COST
THRU BUDGET YR**

\$ 14,296.8 M

VU GRAPH 13

AIRCRAFT FLYAWAY COST

We requested \$2.6 billion for 84 of this aircraft. It has a recurring flyaway cost of \$21 million, which is down from \$22.5 million in 1982.

CH-53E SUPER STALLION



USN/USMC Heavy Transport Helicopter (16 Ton Lift Capability)

Amphibious/Heliborne Assault Movement of Cargo and Troops

♦ MYP

VU GRAPH 14

MULTIYEAR PROCUREMENT

The next aircraft is the CH-53 Super Stallion, the Marine Corps' heavy-lift helicopter and assault helicopter. The MH-53 will be the Navy's airborne mine sweeping helicopter. We are requesting multiyear procurement for this aircraft. It meets the criteria and has a high degree of cost confidence. It has over 7 years of production, a validated requirement, stable funding, and a stable configuration. The multiyear savings on this aircraft will amount to \$130 million.



CH-53E SUPER STALLION (MYP)

AIRFRAME
SIKORSKY AIRCRAFT DIV.
STRATFORD, CONN.

MANUFACTURERS

ENGINE
GENERAL ELECTRIC CO.
WEST LYNN, MASS.

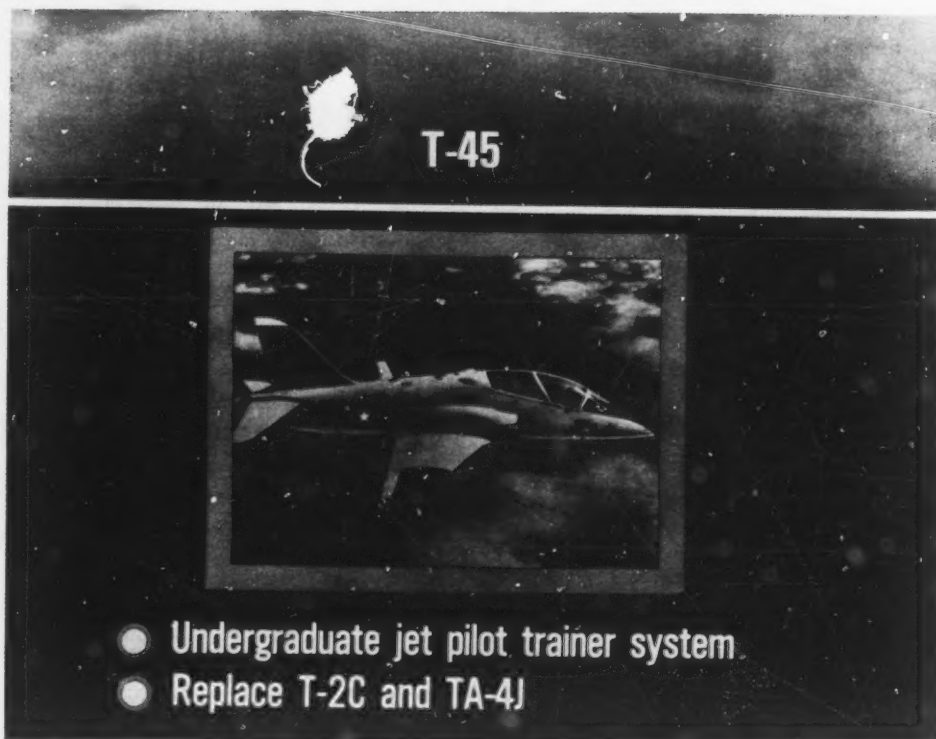
QUANTITY	FY 85 REQUEST		UNIT COST
10	WEAPONS SYSTEM COST		\$ 292.9 M
	RECURRING FLYAWAY	\$ 157.7 M	\$ 15.8 M
	NON RECUR/ANCILLARY	25.3	
	SUPPORT	46.9	
	ADV PROC (PRIOR YR)	-6.6	
	ADV PROC (CURR YR)	69.6	
	INITIAL SPARES	\$ 27.6 M	RECURRING FYAWAY
TOTAL PROCUREMENT COST		\$ 320.5 M	

PROGRAM STATUS		
INVENTORY 1 JAN 84	FUNDED & UNDELIVERED	PROCUREMENT COST THRU BUDGET YR
63	20	\$ 1,730.3 M

VU GRAPH 15

FLYAWAY COST

We are requesting \$292 million for eight CH-53's and two MH-53's. The recurring flyaway cost of this aircraft is \$15.8 million.



VU GRAPH 16

UPGRADED TRAINER

The next aircraft is the VTXTS, which is a modernization issue, because we need to modernize the schoolhouse at the same time we modernize our forces, although this aircraft will not come into full introduction until 1991. The system consists of an airplane, the T-45, the academic devices, simulators, and contract logistic support.

By congressional direction last year, we restructured the program to an all-wet, or all carrier capable, aircraft. We need it as soon as possible to preclude training shortfalls in our TA-4's and T-2's, which we are now using. We are going to fly those through 1995, though we introduce the program in 1991. So we are going to try to move this along as fast as possible. We restructured this program, and we feel that we have a workable program.

It decreases the time to train by 10 percent. It cuts down the amount of equipment that you need by 40 percent. I also saves 50 percent in operational fuel costs each year. So it is a good program. We need to improve the schoolhouse, otherwise in the 1990's we are not going to have the capability to train our flight crews.



VU GRAPH 17

JOINT R&D PROGRAM

The next program is the JVX, which is a joint Navy and Air Force research and development program. The Navy has the lead. Preliminary design is based on the NASA/Army XV-15. The flight data looks very promising. It uses state-of-the-art technology. The Army is no longer in on the development, but it has offered to get in on the buy after the aircraft has been developed.

It will be the Marine Corps primary, medium assault lift aircraft, and has an IOC of 1991. In the Navy, we plan to use it for combat SAR, and we hope to use it for carrier-on-board delivery, for vertical lift, possibly for ASW, and for other support missions. The technology has many, many applications throughout the aviation industry. We have no procurement for this aircraft, but we have \$198 million for research and development.

FY 85 AIRCRAFT SPARES

	\$ MILLIONS
● INITIAL SPARES	\$833.1
● REPLENISHMENT SPARES	776.6
TOTAL	\$1,609.7

FY81	FY82	FY83	FY84
1,096	1,541	1,959	1,964

VU GRAPH 18

SPARES FUNDING

Just one final subject, spares. Our 1985 request is on the slide. Our funding in 1983 and 1984 was 30 percent over the spares that we requested in 1982, and almost 100 percent improvement since 1981. Our 66.5 percent mission capable rate, which I spoke of, and the goal of making it 70 percent in 1985 is due primarily to the spare support.

Our ongoing procurement efforts for spares are taking a lot of new twists. The F/A-18 spares are being procured at the same time as we procure the aircraft, and we are getting lower prices for quantity orders. We are expanding that concept to other aircraft purchases as we learn how to do it.

REQUEST FOR ASSISTANCE ON NEW PROGRAMS

The Naval Materiel Command has a couple of new programs, one called "Boss, or Buy Our Spares Smart," and there are several others that are ongoing in ways to reduce the cost of spares in the aviation system. Your support is requested.

I would like to ask General Fitch to talk about the Marine Corps programs.

General Fitch.

[The prepared statement of Admiral Schoultz follows:]

PREPARED STATEMENT OF VICE ADM. ROBERT F. SCHOULTZ
DEPUTY CHIEF OF NAVAL OPERATIONS
(AIR WARFARE)

Mr. Chairman and distinguished Members of Congress: I am honored to be here today to present the FY-85 Navy Aircraft Procurement and Research and Development Programs. I am accompanied by Lieutenant General Fitch, Marine Corps Deputy Chief of Staff for Aviation, and Vice Admiral Busey, Commander Naval Air Systems Command.

We think it is more important than ever that the vitality of the Navy-Marine Corps aviation team be maintained. National commitments require that our forces be deployed to protect U.S. interests around the world in peacetime and be prepared to respond at any level in conflict. Our ability to respond with action in crisis situations and by mere presence has been amply demonstrated in Central America, Grenada, and Lebanon over the past year.

Our budget request for FY-85 is designed to strengthen our air warfare capabilities and represents a considered balance of competing priorities. Requested procurements do not meet every requirement but I am convinced that our budget request will achieve the highest level of effectiveness within the constraints of fiscal reality.

We have allocated Naval Aviation's resources to the four central elements of force effectiveness: Readiness, Sustainability, Modernization and Force Levels, in proportion to achieve the greatest advantage for Naval Aviation. Over the past several years we have made significant improvements in each category and plan to continue that trend in the future.

In readiness, our overall goal is to achieve a force level Aircraft Mission Capable (MC) rate of 70 percent and we are moving positively in that direction. We averaged 66% MC in FY-83 and forecast 67% in FY-84. With continued Congressional support for our repairable and spare parts requests we should achieve our 70% MC goal in FY-85.

The prime elements of material readiness are aviation spares and aircraft depot rework. The FY-85 budget decrease in spares and component rework funding from the FY-84 level is a result of the shift in procurement and repair lead time responsibility for these accounts to the Navy Stock Fund. Stock funding of Aviation Depot Level Repairables will improve both readiness and sustainability. Readiness increases are also anticipated from the recently adopted Aircraft Service Period Adjustment (ASPA) program which will base our airframe rework requirements on the specific material condition of each aircraft rather than the average condition of all of that type aircraft. Another contributor is our increased investment in aircraft support equipment as we build toward 15 deployable carriers and the requisite air wings. Specifically our FY-85 request includes the aircraft support equipment required for USS THEODORE ROOSEVELT (CVN-71), which will be delivered in FY-87.

Sustaining our carriers in global operations is an important part of the effectiveness equation. As Secretary Lehman pointed out in his posture statement the formula for sustaining day-to-day operations is based on identifying those commodities which are "war stoppers." Shortages for sustained operations have been identified and we are taking positive steps to address those stockpile, parts and support deficiencies. Over the past three years investments in spare parts, weapons, aircraft maintenance and support equipment have increased substantially. Eight of our thirteen carriers can be deployed today fully equipped and capable of sustained operations. The funding requested in the FY-85 budget for these high priority requirements is necessary to achieve our sustainability objectives and fully outfit our fifteen carriers as they are delivered.

We have a pressing modernization requirement as the threat to naval aviation forces continues to grow while the age of our tactical air force also increases.

The F/A-18 HORNET and AV-8B HARRIER address these two critical modernization problems.

We are continuing with several modernization initiatives in the area of anti-submarine warfare (ASW). The SH-60B, the airborne subsystem of the Light Airborne Multi-Purpose System (LAMPS) MK III, will be the primary ASW system aboard CG-47, DDG-993, DD-963 and FFG-7 class ships. LAMPS MK III employment will optimize ASW coverage for those forces where defense-in-depth is thin. The requested production rate of 18 SH-60B aircraft per year will meet the minimum force level requirements.

Aircraft R&D programs are substantial contributors to the upgrading of our aviation weapon systems capability. The Navy has made the decision to modernize its F-14 TOMCAT aircraft in lieu of developing a new fighter platform. The TOMCAT will be upgraded with modern technology engines and advanced avionics. We expect that competition, sub-system commonality and increased reliability and maintainability(R&M) will yield substantial life cycle cost savings. The Navy will upgrade the A-6E in consonance with the recommendations of the recent All Weather Strike Aircraft Study.

We have the lead in a major joint USN/USAF research and development effort - the JVX program. Preliminary design work is underway and we anticipate a full scale development go ahead in 1985. The JVX will provide a modern platform for USMC medium assault lift, Navy combat search and rescue (SAR) and other support missions.

We are reevaluating the carrier inner-zone ASW helicopter program to replace the aging SH-3H aircraft through a competitive research and development effort. The primary objective of the competition will be to obtain the CV inner-zone helo with the lowest development, acquisition and support costs consistent with the operational requirement.

Another major R&D initiative is VTXTS. As Congress directed, the T-45 Training System has been restructured to include carrier capable aircraft only. The single phase program is being built around the following essential requirements: an early IOC to preclude shortfalls in training aircraft inventories; the use of derivative technology to ensure a cost effective R&D funding profile; an executable procurement schedule; and an affordable funding profile. The program is in the final stages of review in DoB.

In October last year, the Navy finalized the air Electronic Warfare Improvement Plan(EWIP) which instituted the following actions: in response to current and future threat, EW deficiencies were identified and prioritized. Selected technically feasible programs were accelerated. These efforts include radar/missile warning systems, airborne Defensive Electronic Counter-measures (DECM), off-board countermeasures, and EA-6B Advanced Capability (ADVCAP) development.

We continue to stress upgrading our existing tactical assets through the Aircraft Modification Program, funded under Budget Activity 5 (APN-5). Major initiatives include reliability and capability improvements to the F-14, A-6, EA-6B, E-2C, S-3A, P-3C and AH-1T aircraft. Upgrading common Electronic Counter Measures(ECM) equipment will provide significant R&M and mission effectiveness improvements which are essential to the survival of our TACAIR assets in a hostile environment.

ASW improvements under APN-5 include the P-3C Update III and the S-3 Weapons System Improvement Program (WSIP). The S-3A has achieved a 20 percent increase in mission readiness rate over the last two years and the WSIP is the first operational upgrade since S-3A fleet introduction in 1974. The WSIP will provide a three fold improvement in our detection and attack capability against the quieter new generation Soviet submarines.

In the area of weapons modernization, the introduction of the High Speed Anti-Radiation Missile (HARM) in combination with the SKIPPER, MAVERICK and HARPOON will significantly improve our standoff attack capability. In FY-85, we will introduce the upgraded PHOENIX missile (AIM-54C) with its greatly expanded ability to defeat the enemy in the Outer Air Battle.

Hand-in-hand with these advances in the active aviation force are initiatives to modernize the Naval Reserve. Transition of reserve squadrons to the fleet compatible A-7E and E-2C aircraft has begun. Reserve introduction of the F-14 and F/A-18 is planned to begin this year.

As we build toward the 600 ship Navy and the necessary aviation assets to support that growth we must carefully balance our procurement program. It is well documented that we are not acquiring aircraft in sufficient quantities to attain our force structure goals without increasing the age of our force. Affordability is the crucial issue and substantial progress has been made in aircraft procurement cost reductions. Program cost growth has been reversed and we will continue to stress cost reduction in future contractual agreements.

In each budget we must assess tradeoffs between force requirements and affordability. This necessitates a careful scrutiny of the number of aircraft production lines and possible ways to reduce that number. We make every attempt to procure an aircraft over the shortest practical period as evidenced by the selective buy out programmed for TH-57, T-34, T-44, AH-1T, UC-12 and C-2 aircraft.

Production lines for tactical combat aircraft must be kept open for the next several years as we build our force levels. The 13th and 14th air wings associated with the new carrier deliveries need to be outfitted with first line aircraft over the FYDP years. The modernization of USMC air wings in the close air support role requires near term continued procurement of the AV-8B and F/A-18. A final factor which influences the number of production lines is the total force concept of horizontal integration of reserve forces with current and carrier compatible aircraft. This is a vital requirement since the 15th deployable CV will be outfitted with a reserve air wing.

Current R&D efforts are leading more toward multi-mission aircraft such as the JVX and continued emphasis in this direction will further reduce the number of procurement budget lines. From 16 lines in FY-85, we will go to 14 in 1986, 12 in 1987 and 11 in 1989. I recognize your concern over this issue and we are working to reduce the number of production lines in the future.

We have already demonstrated that multiyear procurement (MYP) in aviation programs can attain substantial savings. Congress approved MYP for the C-2A in FY-82 and savings of over \$90 million are projected over the buy of 39 aircraft. The FY-85 budget requests approval of the CH/MH-53E for multiyear procurement. In addition to providing significant savings the program meets the following criteria for MYP: a high degree of cost confidence based on seven prior years of CH-53E procurements, a validated requirement, stable funding and a stable configuration. MYP savings of \$130 million will be realized when compared to annual procurement of the CH/MH-53E.

The current budget requests procurement of 287 aircraft, a modest increase over the FY-84 request. Last year we asked for 281 aircraft and received appropriation for 232. As the CNO has stated, "the number of aircraft requested is slightly below that required to provide adequate force levels without suffering any increase in overall force age." I solicit your support for our total procurement request in order to achieve 15 deployable carriers and 14 active duty deployable airwings.

The FY-85 budget request supports a complement of formidable aircraft that provide the necessary capabilities to control the seas and project power ashore. The F-14 TOMCAT is still the most capable fleet air defense fighter of the Free World. The A-6 INTRUDER provides a long range all-weather, medium attack

capability second to none. With the addition of the F/A-18 HORNET which complements both the F-14 and A-6, we gain vastly increased flexibility to perform both fighter and strike missions, making the Carrier Battle Group (CVBG) much stronger, both offensively and defensively.

As we gain experience in operating the F/A-18, we see it developing as the core around which to construct the power projection capability of the carrier battle group. It will serve as fighter escort, freeing F-14s for the outer air battle; perform SAM and AAA suppression; conduct interdiction strikes; and provide close air support and airborne tactical reconnaissance. The force multiplier effect of the F/A-18 offers increased effectiveness to carrier battle groups and Marine air wings.

The Navy plans to deploy aircraft carriers in both fleets with various air wing compositions to gain valuable operational data on the effectiveness of revised air wings. USS KENNEDY has deployed with an air wing comprised of A-6Es and F-14s; USS CONSTELLATION will operate with A-6Es, F-14s, and F/A-18s; and USS MIDWAY and USS CORAL SEA will be outfitted with A-6s and four squadrons each of F/A-18s. All carriers will retain a normal deck multiple of support aircraft. Each of these air wings has particular strengths and limitations which must be considered in tactical planning. As the results come in we will be evaluating the best blend of individual aircraft types in the carrier air wing for maximum effectiveness. Any changes will be evolutionary. Our air wing force level requirements are paramount. The quantity of aircraft requested in FY-85 will not be affected.

The carrier battle group will counter the formidable and ever growing Soviet submarine threat with the S-3A VIKING, the SH-2F SEASPRITE and SH-60B SEAHAWK (LAMPS I and III), and the shore based P-3C ORION.

Our front line attack, fighter and ASW aircraft will be supported by KA-6D tankers, early warning E-2C HAWKEYES, electronic jamming EA-6B PROWLERS, other reconnaissance equipped aircraft, and replenished by our improved C-2A carrier-onboard-delivery (COD) aircraft. We continue to put to sea a force capable of convincing potential adversaries that we can fight and win.

The goal of Naval-Marine Corps Aviation is to build a credible force which employs tactics and strategies which enable us to fight intelligently and effectively. That includes not only ensuring a strong, capable air arm, but a functional and practiced interoperability with our sister services which provides ever increasing capabilities in combined arms efforts. With your continued support, we shall ensure our ability to attain and sustain that goal.

VICE ADMIRAL ROBERT F. SCHOULTZ, USN
Deputy Chief of Naval Operations
(Air WARFARE)

Vice Admiral Robert F. Schoultz spent his youth in Omaha, Nebraska. He entered the Navy as a student in the University of Nebraska's NROTC program and earned his wings and commission in September 1945.

Early in his career, Vice Admiral Schoultz served in a variety of capacities in torpedo and attack squadrons and aboard USS MIDWAY (CVA 41). In 1960, following duty on the Staff of the Commander in Chief, U. S. Pacific Fleet, he served as Executive Officer and then as Commanding Officer, Attack Squadron NINETY-THREE. During this tour, Vice Admiral Schoultz led his squadron on two Western Pacific deployments in USS RANGER (CVA-61). From August 1964 to December 1965, he was Head of the Junior Officer Assignment Section, Bureau of Naval Personnel; he then joined the aircraft carrier USS FRANKLIN D. ROOSEVELT (CVA 42) as Operations Officer then Executive Officer.

Vice Admiral Schoultz was Strike Warfare Officer and Assistant Chief of Staff for Plans on the SECOND Fleet Staff prior to assuming command of the amphibious supply ship USS ARNEB (LKA 56) in December 1969. He commanded the aircraft carrier USS FORRESTAL (CVA 59) from June 1971 to 1972.

He then returned to the Bureau of Naval Personnel in late 1972 as Assistant Director for Captain Detailing (Aviation). In November 1973 he was promoted to Flag rank and became Director of the National Military Command Center (J-3), Joint Chiefs of Staff in the Pentagon, then later served as Vice Director for Operation (J-3) Joint Chiefs of Staff until detaching in September 1976 to attend the Senior Officers Ship Material Management Course, Idaho Falls, Idaho. Vice Admiral Schoultz assumed command of Battle Force SIXTH Fleet in April 1977. In August 1979, he reported to the OPNAV Staff as Special Assistant to the Director for Command and Control (OP-094). Vice Admiral Schoultz assumed command of Naval Air Force, U.S. Pacific Fleet on 31 January 1980.

Vice Admiral Schoultz assumed his present position as Deputy Chief of Naval Operations (Air Warfare) in September 1982, with responsibility for establishing policy for the conduct of naval air warfare and determining plans and requirement for naval aircraft, air weapons systems, aircraft carriers, and specified aviation type ships. He is the principal advisor to the Chief of Naval Operations for all matters involving naval aviation.

Vice Admiral Schoultz wears the Distinguished Service Medal, three Legions of Merit, Bronze Star Medal, Joint Service Medal, Navy Commendation Medal, American Campaign World War II Victory Medal, Armed Forces Expeditionary Medal, Republic of Korea National Security Merit Gugseon Medal, Vietnam Service Medal with six bronze stars and the Republic of Vietnam Campaign Medal with Device. Vice Admiral Schoultz is currently the recipient of the Navy's Gray Eagle Trophy, an honor acknowledging him to be the longest designated Naval Aviator on active duty.

Vice Admiral Schoultz is married to the former Rosemary Parker of Falls City, Nebraska. They have two sons, Robert and Scott.

U.S. MARINE CORPS

STATEMENT OF LIEUTENANT GENERAL WILLIAM H. FITCH, DEPUTY CHIEF OF STAFF FOR AVIATION, UNITED STATES MARINE CORPS

MARINE AVIATION PROGRAMS

General FITCH. Thank you, Mr. Chairman.

It is a pleasure to appear before your committee again this year. My oral remarks will be a very brief synopsis of my prepared statement, which you said would be entered for the record.

First, let me say, Marine aviation programs represented in the fiscal year 1985 budget are vital to the continued improvement of our combat capability.

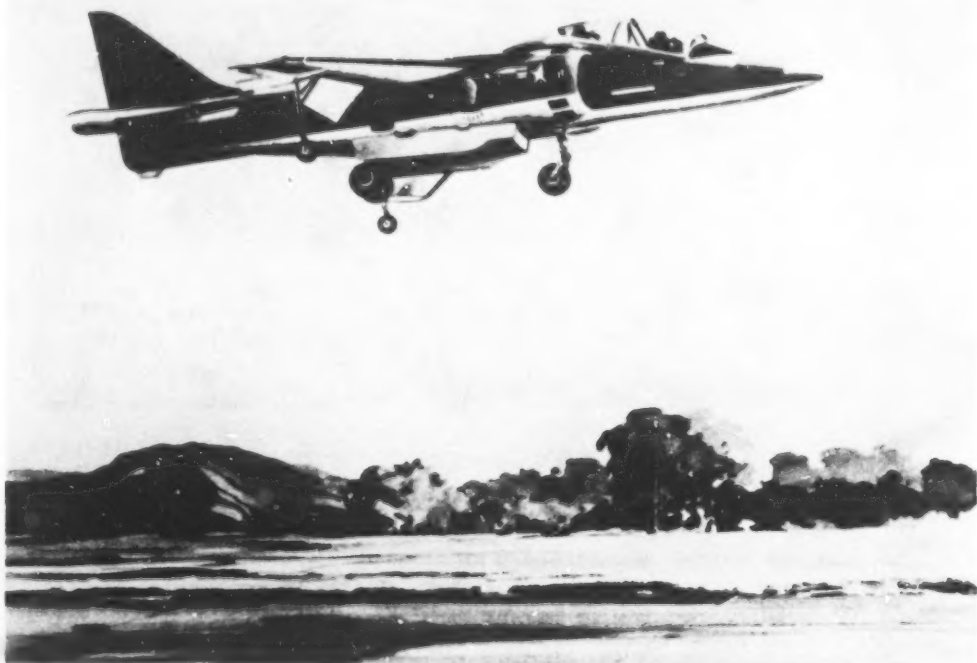


VU GRAPH 18

PROGRESS IN AV-8B PROGRAM

Our AV-8B program is progressing very well. We have delivered two aircraft to the Fleet Marine Force and the flight handling characteristics, performance and maintainability are reported to be

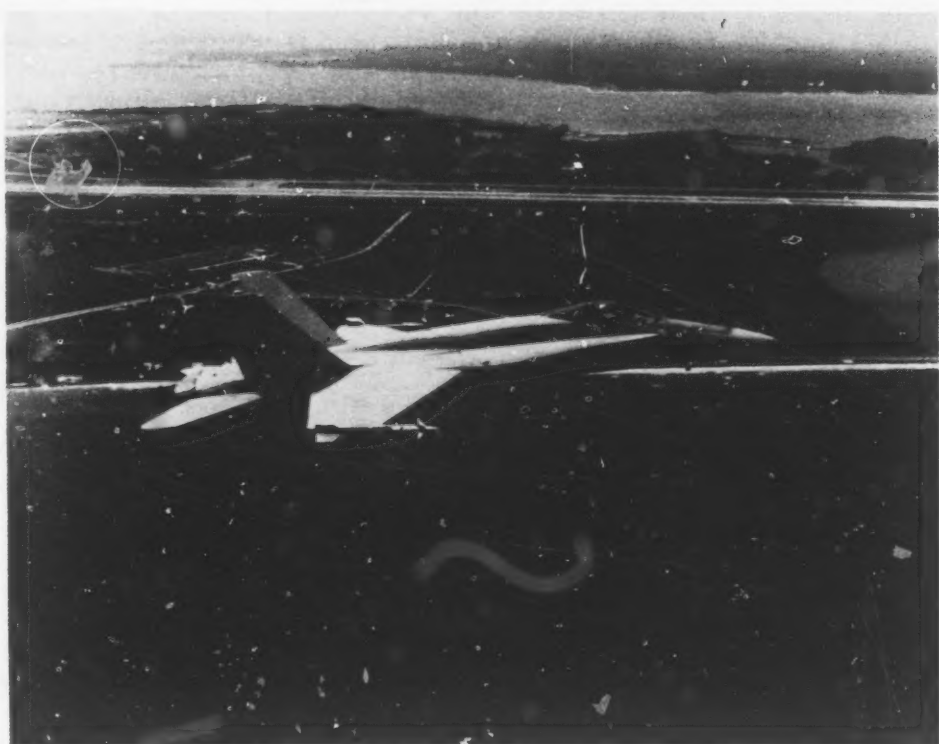
even better than anticipated. The aircraft has been extensively tested and its final operational evaluation is scheduled to commence this August. We do not anticipate any problems as the aircraft meets the Operational Requirement [OR] today. Recurring unit flyaway cost is \$18.3 million which is \$1.6 million less than in fiscal year 1984. This year's request of \$939.8 million is for 32 aircraft.



VU GRAPH 19

FUNDING FOR TWO-SEAT TRAINER

Our two-seat trainer, the TAV-8B, is funded within the AV-8B R&D line and \$59.3 million of the \$70.4 million requested for AV-8B RDT&E is for this development. The Marine Corps gave up eight aircraft for RDT&E funds to develop the trainer within the original program cost and we expect our first TAV-8B flight in December of 1986 with Initial Operational Capability (IOC) of late fiscal year 1987. The timely development of the trainer is critically important as our VSTOL pilot requirement more than triples over the next 5 years.



VU GRAPH 20

TWO-SQUADRON DEPLOYMENT

The Marine Corps is currently operating three tactical F/A-18 squadrons and our pilots consider it to be the best fighter in the world. We will be deploying two squadrons aboard the Coral Sea in late 1985. Last year, I said, "Initial operational experience with the F/A-18 at El Toro indicates that the aircraft fills the multiple mission requirement extremely well." We have now completed more than a year of Hornet operations and more than 11,000 flight hours. Our initial expectations have been exceeded in every respect. Air-to-air performance, ground attack, range, survivability, and reliability and maintainability have proven to be superlative.

To date, in calendar year 1984, we are averaging 85 percent mission capable and over 70 percent full mission capable based on the 24-hour clock, while requiring only 14 to 15 maintenance manhours per flight hour.

On a recent squadron deployment, in the second week of the deployment, with 11 aircraft on hand, VMFA-531 began the day with 11 aircraft full mission capable. They flew 45 sorties in one day, and they completed the day with all 11 aircraft full mission capable.

More recently we flew trans-Pacific four F/A-18's from El Toro to Hawaii, a distance of over 2,000 miles. After airborne tactical refueling, each aircraft launched an air-to-air missile with all missiles being scored as a kill. The aircraft recovered full mission ca-

pable at the Marine Corps Air Station Kaneohe Bay after an 8½-hour flight. This speaks well for the reliability of the F/A-18.

The F/A-18 has rapidly become the standard against which other multimission fighter/attack aircraft should be measured. Last, we believed we had a winner. This year, we had winner. This year, procurement request will permit our transition to stay on schedule with our next squadron to begin training in January of 1985.



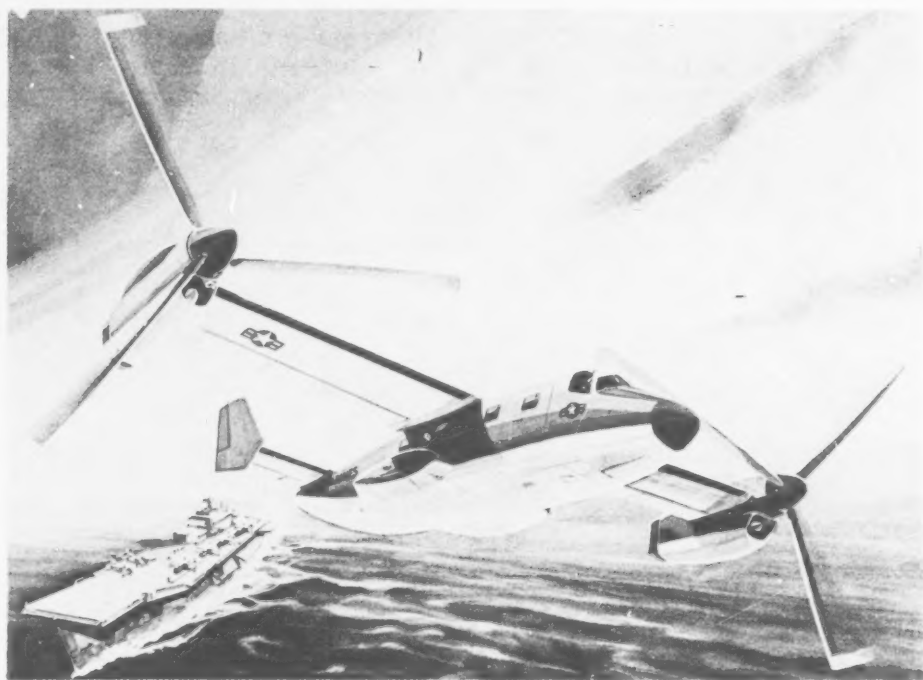
VU GRAPH 21

ROTARY AVIATION

In rotary wing aviation, I would particularly note two programs—the AH-1T Sea Cobra and the J VX tilt rotor program. The Marine Corps has a small, active force of attack helicopters composed of two AH-1T squadrons and one Vietnam era AH-1J squadron. We are currently short AH-1T aircraft in both squadrons. Our Reserve squadron, which operates the AH-1J, is also critically short aircraft and has only eight of 24 aircraft authorized.

In fiscal year 1985, we are asking for procurement of 22 AH-1T aircraft. Recurring flyaway cost is \$6.7 million. These aircraft will have the capability to shoot Hellfire, Tow, and Sidewinder, and are programed to have the enhanced T-700 engine package incorporated. This procurement, which will have a firm fixed price contract, will permit us to bring our AH-1T squadron up to authorized

levels, while commencing the transition of our third active squadron from AH-1J's to AH-1T's.



VU GRAPH 22

JVX TILTROTOR PROGRAM

The Marine Corps enthusiastically supports the JVX tilt rotor program. Normal attrition of our current medium assault helicopter, the CH-46, dictates a 1991 IOC for JVX. The tilt-rotor promises a giant step forward for rotary wing aviation. In my view, this is step comparable to the introduction of the jet engine into fighter aviation. Preliminary design wind tunnel efforts are progressing very well and we expect to be 50 percent complete by the end of spring. A decision for full-scale development (FSD) of JVX will be made about June 1985, and our fiscal year 1985 funding request is critical to reach that full scale development decision point.



VU GRAPH 23

CH-53 ECHO HELICOPTER

The CH-53 Echo heavy lift helicopter continues to perform well in support of Marine ground forces. A training element was activated in October 1983 and we plan to stand up our third tactical squadron early in fiscal year 1985. The Department of the Navy request for \$320.5 million includes advance moneys for multiyear procurement of 14 aircraft per year for fiscal years 1986 through 1989. The Marine Corps strongly supports this multiyear procurement request.

In summary, Mr. Chairman, your previous support for our programs is greatly appreciated. I would ask your continued support for this year's request which will continue our modernization efforts and will enhance our readiness.

Thank you.

[The prepared statement of General Fitch follows:]

PREPARED STATEMENT OF LT. GEN. W. H. FITCH, USMC
DEPUTY CHIEF OF STAFF FOR AVIATION

Mr. Chairman, Distinguished Members of the Committee:

It is my privilege to again address the committee on the status of Marine Aviation, a key element in the capability of the Navy-Marine Corps team to project power ashore. At the outset, I would like to thank the committee for your strong support over the past year; support which has enabled us to further enhance and improve our combat capabilities. 1983 was an excellent year for Marine Aviation as we continued to establish new highs for aircraft readiness. We attained 59% Full Mission Capable and 74% Mission Capable, based on a twenty-four hour clock, while we continued to conserve our valuable assets by matching our all-time low mishap rate (6.13 mishaps per 100,000 flight hours). Throughout this past year we have continued to introduce new, vastly improved, weapons systems to the Fleet. These new weapons systems are meeting or exceeding all our expectations. We are combat ready and working hard to be even more ready. Several aviation programs are of particular interest and I would like to address those now.

Of major concern to Marine Aviation is the very tightly constrained Flying Hour Program (FHP). Our tactical flying program requirements have increased over the past three years as our pilot/NFO availability has improved through higher retention. Three years ago the Marine Corps was short 581 pilots and 124 NFO's. Today we're at 100% in Naval Aviators and nearly at proper strength for Naval Flight Officers. Our capability to meet this greater tactical flying requirement has also increased, through force modernization and improved aircraft readiness, however, flight hour funding has not kept pace with requirements. Congressional action in FY-84, which improved to a limited degree that year's funding, was most welcome and greatly appreciated. Your full support for our FY-85 program is vital to our continued readiness.

The modernization of Marine fighter-attack (VMFA) forces is well underway. With three strike-fighter squadrons now operating at MCAS El Toro, Santa Ana, CA, it is readily apparent that we have a truly superb fighting machine in the F/A-18 Hornet. This is an aircraft that can gain and maintain air superiority within the amphibious objective area and over the battlefield. At the same time its ability to navigate, to locate targets and accurately deliver ordnance, provides a tremendous force multiplier, and as such, enhanced support for the ground commander. We continue to be impressed with the handling characteristics, performance and maintainability/readiness of the Hornet.

The AV-8B Harrier program, as in previous years, continues to be the key element in the modernization of Marine Corps light attack forces. Four Full Scale Development (FSD) aircraft are progressing well through a demanding flight test program. Deficiencies identified in systems and performance in the course of initial evaluations have been addressed by the development team and solutions are at hand. Subsequent evaluation of improvements, including a recontoured inlet, confirms that performance has been improved and meets Operational Requirements. VMAT-203, our AV-8 training squadron, accepted the first AV-8B on 12 January of this year. The introduction of the AV-8B will result in more effective and responsive Close Air Support (CAS) for the ground commander. The Harrier's responsiveness is inherent to the aircraft due to its basing flexibility. This same flexibility may well result in the AV-8B being the only fixed wing close support available ashore during the early days of an amphibious assault.

The key to a safe and efficient transition to an all V/STOL light attack force is the TAV-8B, a two seat trainer version of the AV-8B. A low risk technical development, the TAV-8B, with current funding schedules, can be delivered in FY-87. This will be in time to meet the second year of our peak training demand which begins in 1986.

FY-85 funds are requested to keep the vital AV-8B and TAV-8B programs on schedule. Our first tactical AV-8B squadron will stand-up during FY-85.

The EA-6B, the free-world's best electronic warfare aircraft, continues to be key in daily operations and training as well as contingency planning. The importance of this aircraft grows daily in view of the Soviet electronic order of battle, which features an ever more sophisticated and dense AAA, SAM, fighter, and electronic warfare threat. Our 15 plane squadron cannot meet all require-

ments and the continued procurement of the EA-6B is vital to ensure Navy/Marine and National success on the electronic battlefield of the 1980's and 1990's.

The A-6E Intruder remains the only aircraft in the DON inventory capable of providing all-weather, day or night close air support and interdiction capability. I have commanded two A-6 squadrons, one of which was in combat in 1967-1968 where we flew the night low-level attack missions against North Vietnam. I continue to fly the A-6E. It is a superb aircraft, and with its Laser Designator Ranger (LDR) and Forward Looking Infra-Red (FLIR) system has a proven capability to provide both night and all-weather CAS ordnance delivery. We urge you to support the procurement of the six A-6E's in the 1985 budget submission.

Modernization of Marine Aviation's heavy lift helicopter community is progressing extremely well with the introduction of the CH-53E Super Stallion into Fleet Marine Forces. With two complete 16 plane squadrons now operating, one at MCAS(H) Tustin and one at MCAS(H) New River, we are regularly supporting Marine ground units at Camp Pendleton, CA and Camp Lejeune, NC. More recently we completed our first deployment of the Super Stallion aboard ship. In October of this year we will stand up our third CH-53E tactical squadron. Three squadrons will marginally meet our current heavy lift requirements for ship-to-shore movement and we have a recognized requirement for a minimum of six squadrons. FY-85 funding requests include advance funding for multi-year procurement of the CH-53E in FY-86/FY-89. Your support of this request will ensure a timely, cost efficient modernization of Marine heavy lift capabilities.

The AH-1T Sea Cobra is a helicopter program of great importance. A small, agile attack helicopter, the Cobra with the T-700 engine is one of our most versatile platforms. The Cobra, a true multi-mission aircraft, provides armed escort for our troop assault aircraft, anti-armor capability with TOW and Hellfire (IOC FY-86) and close in fire support for ground forces with forward firing rockets and a 20MM gun. The AH-1T has been further modified to develop a self-protection capability with the addition of an AIM-9 (Sidewinder) capability. The incorporation of the GE T-700 engine in the FY-85/FY-86 procurements, due to prescient Congressional action in FY-84, will provide a quantum increase in both operational capability and safety in all environments. The T-700 twin pack has been installed in a developmental AH-1T and the performance of the aircraft is most impressive. The Cobra community, due to weapons system versatility, remains our most heavily committed aviation community. FY-85/FY-86 procurement is vital to alleviate existing critical inventory shortfalls in our four AH-1 squadrons. The procurement of these 44 aircraft will permit the proper equipping of our anti-armor and close-in fire support forces.

A major concern is the rapidly aging and declining inventory of CH-46E's, our medium lift assault transport. To avert an early 1990's critical shortfall in medium lift, modernization efforts are embodied in the Joint Services Advanced Vertical Lift Aircraft (JVX) or tilt rotor. JVX provides a 250 knot assault transport that is self-deployable worldwide, capable of lifting 24 Marines up to a 200 nautical mile mission radius, capable of rapidly penetrating deep into enemy rear areas, and bypassing adverse terrain and weather threats. It represents a quantum leap in strategic mobility for conventional forces where its global self-deployability provides the responsiveness to rapidly marry-up airlifted Marines with prepositioned equipment in Norway and Maritime Prepositioned Ships (MPS). Further, to the tactical commander, it represents a heretofore unavailable advantage in battlefield mobility and flexibility. JVX meets the need for increased stand-off distances, further enhancing over-the-horizon amphibious assaults. RDT&E funds requested in FY-85 are important to the maintenance of our development schedule which will lead to a 1991 delivery of JVX to Fleet Marine Forces.

We feel that Precision Guided Munitions (PGM's) can best meet our anti-armor requirements. Close air support is of paramount importance to Marines and the requirement for a fixed wing deliverable PGM in this arena is met by Laser Maverick. This laser guided munition is compatible with the F/A-18 and AV-8B as delivered and we are modifying the A-6E and A-4M to give all our fixed wing the same type of aircraft standoff survivability. The key element in the optimization of Laser Maverick for the CAS environment is the ability of the ground commander to both select and designate the greatest threat to his unit or mission. Laser Maverick is also designed to provide the crucial margin of safety

for friendly troops in close air support operations with a self dudding feature, and its shoot-and-leave performance provides the requisite aircrew safety.

Hellfire is the new laser guided PGM being procured for use by our attack helicopter force, where it represents both a major improvement over, and a complementary option to TOW. Hellfire, affords the aircrew the option of a shoot-and-leave operation, unlike TOW which requires the helicopter to remain vulnerable while the missile is guided in flight. As with Laser Maverick, the ground commander can select and designate the threat and the helicopter, after firing Hellfire, can depart before entering the enemy's anti-aircraft kill zone. This capability will be operational first with our Vietnam era AH-1J's which presently have no anti-armor capability.

A complementary weapon to Laser Maverick is the Imaging Infra-Red (I²R) Maverick, a Deep Air Support (DAS) weapon. The I²R Maverick is not suited to the CAS arena, however, it is ideally suited to interdiction missions against armored targets beyond the Fire Support Coordination Line (FSL).

A critically important program in support of Marine Aviation is the aviation logistics support ship (TAVB). This ship provides sealift movement of an aviation Intermediate Maintenance Activity (IMA) to support the deployment/employment of the Aviation Combat Element (ACE) of a MAGTF during contingency situations. The TAVB represents a means to repair spares while enroute and be operational upon arrival. The FY-85 request for \$42.8M will permit the delivery of the first of two TAVBs in FY-86.

The Marine Corps currently provides approximately one-third of both the flight instructors and students in the Naval Aviation Training Command. Accordingly, we are very interested in the development of the new Undergraduate Jet Flight Training System (VTXTS). VTXTS is comprised of the aircraft, simulators, academics and a training management system. The FY-85 request for \$113.4M will keep the VTXTS, a vital program that the Marine Corps fully supports, on schedule for an IOC of FY-91.

The introduction of new weapon systems into our active forces is also providing for the modernization of our reserve wing's assets. In our rotary wing community, the procurement of 44 AH-1T's in FY-85/FY-86 will free-up sufficient AH-1J assets to raise our reserve AH-1J squadron from 30% of PAA to full strength. Modernization of our active light attack forces with the AV-8B will likewise improve the light attack capabilities in the reserves by making the very capable A-4M available to the 4th MAW. One of our fighter/attack squadrons has received the very capable F-4J (Super J) and another will receive the extremely capable F-4S; in both cases replacing the capable but older F-4N, as we introduce more F/A-18's into the active force. Congressional action over the past three years has provided eight KC-130T aircraft and our reserve air refueling capability is greatly improved as a result of this strong support.

Last year I indicated that Marine Aviation was embarking on an era of unprecedented modernization. Your support over the year has kept that modernization on schedule. We are more combat ready than ever and we look forward to your continued support which will enhance our capability to meet the modern threat.

This concludes my formal remarks. I am ready to answer questions. Thank you.

15-CARRIER BATTLE GROUP REQUIREMENT

Senator STEVENS. Thank you very much.

Admiral Busey, Admiral Cooper, do you have any statement to make?

Admiral BUSEY. No, sir.

Senator STEVENS. How much is this acquisition rate for your budget driven by the 15-carrier battle group requirement?

Admiral SCHULTZ. We are continuing to expand the 13th Wing. To put a specific percentage on that, Mr. Chairman, is going to be a little difficult. I might have to take that for the record. I will try to give you a percentage. We are standing up two F-14 squadrons this year for that wing. We have already purchased the S-3's. They have been in preservation, and they will be activated this year.

I would have to go back and really figure out what the impact of the 15th Wing is on the whole budget.

Senator STEVENS. The committee wonders whether we shouldn't reassess the 15th Carrier Group target. We have the possibility of a Reserve wing being activated, four Marine Air wings, I am told, one in reserve. It might be possible for Congress to make the decision to retire the *Coral Sea* early.

I am told that we now have 12 active carrier wings, and 2 Reserve wings on shore. The *Vinson*, when operational, will take the 13th. The *Roosevelt* will be launched in October, and it will take the 14th. The *Washington*, funded in 1983, will join the fleet in 1989, I am told, and in 1991, we will establish the 15 carrier battle groups, with the *Coral Sea* being retired at that time. One of the reserve wings will be used to fill out the carrier force.

Isn't it the goal of the 15th carrier battle group that is driving this whole budget right now?

Admiral SCHULTZ. I don't think that is the sole reason, Mr. Chairman. Of course, the 15 battle groups were determined by the Secretary and the Defense Department as a requirement to fill our treaty requirements around the world.

If you deploy a carrier, you have to have one working up, or one that has just returned, and one that is in overhaul. So to keep one on forward deployment. Takes three carriers. So you have five carriers deployed, one is working up. For each, or one has just returned, and you have one in overhaul. To keep up with our treaty commitments, it is going to require the 15 battle groups.

The Secretary has stated several times that if we want to reduce the requirements that the country has laid on the Navy, we can reduce the forces.

Senator STEVENS. We are being reduced. As we are being reduced, it seems that the concept of 15 active carrier groups is driving us to the position where we are going to be cutting readiness in order to maintain procurement.

I have not seen the numbers that you said are going to come to us, but your budget is driven on the basis of a 9-percent real growth as a minimum, and we are looking at a 5-percent real growth as a maximum. If something has to give, it would seem that readiness should be the last thing to give.

Admiral SCHULTZ. Yes, sir.

Senator STEVENS. But if we are driven by the 15th carrier group, it means that we are forced into the circumstance of aircraft procurement, and other modernization procurements at the expense of the modernization or at the expense of the ability of meeting our treaty commitments now, one or the other.

OPERATIONAL CARRIER GROUPS

How many carrier groups are you operating right now, 12?

Admiral SCHOULTZ. We have 13 carriers and 12 battle groups, yes, sir.

Senator STEVENS. So in order to get to the 15th, we may well have to slip our ability right now to meet our treaty commitments in order to have the ability to maintain 15 at a later date. Has that been reviewed in the course of this current budget battle?

Admiral SCHOULTZ. Yes, sir. Of course, the current battle is ongoing, as you well know, both in the Department of Defense and on the hill.

Actually, last year, the Secretary had decided that we would not build a 15th active wing, but use one of the reserve wings. So that is a retrenchment from our previous position. You are asking, can we go any farther, and that would take a survey of our whole commitment and what our deployment assets are, what our requirements are, to see whether we could go any farther.

We have in the current budget, depending on what happens to it, sufficient assets to stand up the 13th wing. Then, of course, with every aircraft that is on the line, we have a certain training requirement that goes with it, and a repair pipeline. We buy some force assurance capability. If you have to, you can go down into your pipeline for a period of time. We can also, as we have done in the past, shuffle air wings from ship to ship, but it is not the most efficient and effective way to do it.

Our operational tempo today in our carrier forces is higher than it was during Vietnam, and we are doing that to keep up with the requirements that are laid on us by the national command authority.

AIRCRAFT REQUIRED TO SUPPORT LAST WING

Senator STEVENS. How many of what types of aircraft in your 1985 request are needed to support the 1987 initial operation date for the last wing?

Admiral SCHOULTZ. I could take that for the record and be a lot more accurate, Mr. Chairman, but I would say, probably out of the procurement of new aircraft, about one-half, and that is just an estimate.

Senator STEVENS. I don't want to pursue that any further. I think we are going to have to wait for the announcements that will be forthcoming when we determine what cuts the Navy is going to recommend to meet the new level that has been agreed upon by the President and the leadership over here at least.

Admiral SCHOULTZ. What you are really doing, Mr. Chairman, when you say, do you have to have those airplanes for the 14th wing that would stand up? You could stand that wing up by main-

taining the F-4's and A-7's, and not modernizing. You could still fill that force, but it would not be modernized at the same time.

You could find the assets to do it. It would not be done as efficiently or as effectively with modernized equipment, but you could certainly fill up that wing and fulfill that requirement and the commitment.

RESERVE USE FOR 14TH WING

Senator STEVENS. You could also use some Reserves, couldn't you?

Admiral SCHOULTZ. Yes, sir. For the 14th wing?

Senator STEVENS. Yes.

Admiral SCHOULTZ. It would take some advance planning to get that done and stand up by 1987. They will have several squadrons of A-7 Echoes by that time, and they could fill in very easily. The difficulty would be in trying to rotate those crews during their active duty periods. In a wartime situation, you could do it.

Of course, we do that with the Reserve P-3 squadrons that deploy to both the Pacific and the Atlantic, but we rotate the crews every 2 weeks, using the logistics aircraft that belong to the Reserves. They have been stood up and trained, and they take a new crew over every 2 weeks to take over. They do a fantastic job.

Senator STEVENS. Aren't you doing that to a certain extent on the battleships?

Admiral SCHOULTZ. On the battleships; yes, sir.

Senator STEVENS. Is that a 2-week rotation thing, too?

Admiral SCHOULTZ. Some of the people, yes, sir. Some of the ones that went over during the Christmas period, were on short period active duty to relieve some of the regular crews that came home. Then they went back after 2 weeks. They are flown in and out of Cyprus and various places in the Mediterranean.

Senator STEVENS. Senator Rudman.

Senator RUDMAN. Thank you, Mr. Chairman.

I am very interested in the dialog that the chairman has just had with Admiral Schoultz. I think, Mr. Chairman, that that is one of our problems here. Admiral Schoultz, I think, answered the question very precisely, in terms of where we are going to fill the gap between the 5 and the 9 percent, by simply saying that they have treaty obligations, and I think you have to add to that, Admiral Schoultz, other informal obligations imposed on you by the national executive authority.

Your statement to us is that in order to discharge all of those, you need X, and this is the X that you are presenting to the committee. On the other hand, we can't seem ever to get responses from the national executive authority or the Secretary of Defense, as to which of those priorities we might back off from.

I expect that that is going to be an on-going frustrating dialog because we are going to be forced to make some reductions, as you are aware, and then you are going to have to say to us, to the national executive authority, to the Secretary of Defense, and to the President, if X, Y, and Z all happen at the same time, we can't meet those obligations. It just seems to me that maybe we have too many of those obligations.

F/A-18 FLYAWAY COST

Let me ask you just a couple of specific questions. I wonder if you might reproject on your screen two of the charts. First, the F/A-18 chart that shows the flyaway cost. I wanted to ask you a question about that.

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. While you are looking through those, Commander, I am also looking for the A-6E. Your flyaway cost is what on that?

Admiral SCHOULTZ. \$21 million, it is on the right-hand side of the chart.

Senator RUDMAN. There are other costs that are not reflected in that \$21 million.

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. If you were to reflect those costs and put it against the present projected unit buy, do you have that number?

Admiral SCHOULTZ. It looks like \$33.3 million.

Senator RUDMAN. Is it \$33.3 million if you take all of those non-recurring costs and spread them on this base?

Admiral SCHOULTZ. Yes, sir, that is the program unit cost. The airframe, the engine, and the avionics, the airplane sitting at the end of the runway, that is the recurring flyaway cost, and that is what we are counting as the airplane. If you add the nonrecurring costs, and the ancillary equipment, then it gives you a total flyaway. If you add support and advance procurement, you get weapon system costs. Add initial spares, and you get procurement cost. If you add the research and development, and military construction, then you get the program costs. If you divide the program by the total number of airplanes that you are going to buy, you get a program unit cost.

Senator RUDMAN. Which is \$33.3 million.

Admiral SCHOULTZ. Yes, sir.

A-6E FLYAWAY COST

Senator RUDMAN. Now let's go to the A-6E. That has, curiously—I am not saying that in a critical way, with my friend from New York sitting on my right, but that has, curiously, a higher flyaway unit cost than the F/A-18, if you take the other things out of it, is that correct, by a couple of million dollars.

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. The reason, of course—I just want to have this on the record, because it is probably as good an illustration as we have of what stretch-out is going to cost us this year, if we do any stretch out—even though you are using the same airframe, with some minor modifications, your flyaway cost for those, because you are only buying six of them, is higher than your present F/A-18 cost, especially taking the nonrecurring costs out, by about \$2 million.

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. So it would have to be said that, on the basis on which you that you are buying A-6E's it is a very expensive program we are running compared to buying a brand new aircraft, the F/A-18.

Admiral SCHOULTZ. Primarily because you are buying a smaller number.

Senator RUDMAN. Exactly.

Admiral SCHOULTZ. If you upped that to 84, I am sure that the numbers would be a lot different.

Senator RUDMAN. Obviously, that is just the E-mod of the A-6. When we start going to the F-mod of the A-6, we are going to go even higher. So we are going to end up with several million dollars more for that.

Admiral SCHOULTZ. We are going to call that an A-6 upgrade, and not designate it an F. We are just going to upgrade the one that is in there, the E.

Senator RUDMAN. Do you have any estimate on what the flyaway cost on that is going to be?

Admiral SCHOULTZ. The recurring flyaway cost, we hope that it is going to be not a great deal more. We are negotiating. We just presented a proposed contract to Grumman Aircraft last Friday, and we have not negotiated a price yet. They will respond after looking at our proposals.

Senator RUDMAN. Mr. Chairman, I think this chart probably illustrates as much as anything the enormous costs that we are having because of very small numbers, which we are going to be forced into doing more of. The net impact on the aircraft acquisition budget is going to be a lot fewer airplanes and a lot more money. That is a very interesting chart.

AIRFRAME MODIFICATIONS

As I understand it, there are some airframe modifications, but essentially you are using the airframe.

Admiral SCHOULTZ. Yes, sir. It is primarily to improve the maintainability and the reliability, and also there are some survivability considerations. We need to put the improved technology that we have in the F/A-18 like self-purging fuel lines, protection for the engine—put some armor plate between the engines so that if one engine gets hit, it doesn't destroy the other one. There are several other maintainability efforts that will reduce the amount of time it takes to maintain the A-6, because it is an older aircraft.

Hopefully, from the upgrade, we will learn what we can do to backfit, because we have 317 of these airplanes and they are not going to go away until sometime in the 1992 or 1993 timeframe. As we upgrade the ones that we are building, we will find ways that will be, hopefully, the cheapest and the best ways to retrofit that whole force of 317 and make them a viable weapon system through the mid-90's. We hope to buy another aircraft, or have another aircraft procured, which we will call the ATA, the advanced tactical aircraft, in 1995.

AIRFRAME COSTS

Senator RUDMAN. I am sure that someone on your staff can answer this. Generally, when you take a \$33 million cost on the F/A-18—adding in all of those costs, the litany that you just gave me a while ago that you add up together and divide by the number of units—what percentage of that do you assume to be airframe costs?

Admiral SCHOULTZ. Let me ask one of these wizzards back here.

Senator RUDMAN. I know you have a lot of wizzards over there, so you might be able to give me that number.

Mr. DARR. James Darr, Director of the Budget Office, Division of Naval Air Systems.

Generally speaking about 50 percent or less of the total costs ends up being flyaway cost of the aircraft. That includes not only the cost of budget activities one through four, but it includes support costs. You also see the cost up there of our initial spares, and the cost of our replenishment spares, modifications to the aircraft, and support equipment that we buy.

Senator RUDMAN. Talking now just about the initial cost of the airframe.

Mr. DARR. The airframe varies from aircraft to aircraft. Some of them, such as the P-3 have heavy commitment to GFE, others such as transport aircraft have CFE.

Senator RUDMAN. Take the class F-14, F-18, that type of thing, we are talking about 20 percent of the cost in airframe?

Mr. DARR. The flyaway?

Senator RUDMAN. Just the airframe itself, the flyaway cost of the airframe. I am not talking spares, training, and all of the RDT&E, just the airframe itself.

Mr. DARR. The airframe, generally, is well in excess of 50 percent of the flyaway cost.

Senator RUDMAN. I am going to ask a question for the record for that, because the point that I am making, Mr. Chairman, is that we have Dr. Glower over here talking about all of the commonality, and so forth, that we are trying to build in.

It just seems to me that if we are going to a situation where we are building that few aircraft—this may be something that is not an exception to the rule from what I see in terms of outlay requirements over 1987, 1988, and 1989—I think all the more important to get all of the commonality we can in the instrumentation and the weapon systems and the things that you are doing on this, because I think you are going to find the airframe costs them considerably lower than 50 percent from my information.

Admiral SCHOULTZ. Senator Rudman, let me go back and say something. I gave you all that litany of things that go into the non-recurring costs. You put it all together and you get the weapon system cost. You put some more in and you get the procurement cost. You finally get down to the bottom of the program.

[The information follows:]

FLYAWAY COST

The total airframe estimate in the FY 1985 budget request is \$3,612.6 million. The total procurement estimate is \$7,679.7 million. Airframe is 47 percent of procurement cost.

The recurring flyaway cost estimate in the FY 1985 budget request is \$4,931.9 million and the total flyaway estimate is \$5,334.5 million. The total appropriation request is \$11,474.2 million. Recurring flyaway cost is 43% of the appropriation and total flyaway cost is 46.5% of the appropriation.

The total airframe cost of \$3,612.6 million is 73.2% of the recurring flyaway cost and is 67.7% of the total flyaway cost including ancillary equipment and non-recurring costs. The airframe cost is only 31.5 percent of the APN budget request. Data on each aircraft will be provided separately if desired.

PROGRAM UNIT COST

The congressional data sheet says that the program unit cost of the A-6 is \$18.6. the program unit cost for the F/A-18 is \$29.0 million. So it depends upon how long it will be built and how much is in the equipment. The F/A-18 flyaway costs shows that what we have really done is use the recurring flyaway, because the Secretary uses that as a negotiating position, and then we really know that we are talking apples to apples in every airplane, just the airframe, the engine, and the avionics.

We know each year what we pay for the aircraft alone, because if you build a laser pod and put it on the airplane, and you add that to the cost, and you only buy one for three, it really doesn't fit in unit pricing. So the Secretary has negotiated this flyaway cost and stuck with that. That way, we know exactly what we are talking about, and that is what we use for comparison. I was trying to take some of the confusion out.

Senator RUDMAN. I understand that very clearly. I think my point is that to the extent that we have this terrific mix of aircraft that we are going to be buying, and how we are going to be buying them, I think it is going to be like an accordion, I am afraid, with some of these numbers.

I know you don't like to hear that, but looking at the real numbers out here, unless we are going to cut readiness, we are going to have to do some things with procurement. To the extent that we can get more commonality, at least we will be buying relatively larger numbers of some of that instrumentation, engines, and things of that sort.

I think that the airframe cost is going to turn out to be relatively insignificant in terms of the total cost. I will discuss that with your staff at some point today.

Admiral SCHOULTZ. All right, sir.

Senator RUDMAN. Thank you, Mr. Chairman.

Senator STEVENS. Senator D'Amato.

A-6 UPGRADE

Senator D'AMATO. Thank you very much, Mr. Chairman.

I am wondering if you could put up the chart on the A-6 upgrade, so that we can discuss some commonality.

Admiral SCHOULTZ. Yes, sir.

Senator D'AMATO. You stated that you are trying to achieve substantial life cycle cost savings through subsystems commonality and increased reliability and maintainability in your procurement of the upgrade F-14's, A-6's, and F-18's. Could you explain what systems will be common, and what gains you expect to make in reliability and maintainability?

Admiral SCHOULTZ. The biggest one, of course, will be to develop an avionics architecture that will be digitalized so that we can add all of the various new equipment that is coming along. I mentioned the ASPJ, which is automatic self-protection jammer, and JTIDS. When these programs have all been purchased—they are coming because that is the only way we are going to be able to talk to each other in that system—to put those in the aircraft, we are going to have to digitalize the system. Then you can add anything to the

system by just changing the software. That commonality will be between the F/A-18, the F-14, and the A-6.

We will also improve the radar, which will reduce the maintainability and reliability, so that will improve. We are going to complete a new engine. Which engine it will be, I don't know. There are a couple that are good candidates. The 404 is one, the J-52, P-408 is another, and there are probably several others.

We are going to have a multifunction display that will come off of this avionics. We are going to improve the computers, but use the same computers, the AYK-14 which we use in the F/A-18, and we will use it in the F-14 and in the A-6. We will have several avionics upgrades.

We are going to improve the radar. We are going to improve the Doppler beam sharpening which will improve the capability of that radar in bad weather. It will have the capability to carry AMRAAM, which is an air-to-air capability, because that is built into the same radar that we are using in the F/A-18. Also, we can add the A-6 to the out-of-air battle.

So there are many, many things, and it will really save us in the logistics tail, because they will all be the same. They will have the same computer, the same architecture, and the software, a lot of it will be compatible.

SAVINGS IN LIFE CYCLE COSTS

Senator D'AMATO. Let me ask you, how much money do you expect to save in in life cycle cost as a result of this effort?

I know that it is a tough question, but I ask you to begin to focus in on that. Have you made any studies on that?

Admiral SCHULTZ. It may have been looked at, Senator, but I don't happen to have that number. I will see if any of the fellows behind me can jump up with that number, but I don't know it. I think I can take that for the record. As you know, we have a cap of \$500 million on R&D to upgrade that aircraft.

One of my big concerns is that I will know, when we upgrade the A-6, how I can go about improving the capability of that whole force of 317 A-6's which I have and will have through the year 2000, regardless of how many airplanes I buy.

Senator D'AMATO. What you are saying is that this is a resource that we have, and certainly we shouldn't let it drift into obsolescence. It pays dividends to move forward and make these kinds of conversions.

Admiral SCHULTZ. Yes, sir. As you know, the blue ribbon committee studied that.

Senator D'AMATO. I am well aware of that.

Admiral SCHULTZ. They determined that to upgrade the A-6 was the right thing to do in the near term. We are going to do the advanced tactical aircraft, and we hope to purchase that in about 1995. In the meantime, their recommendation was to upgrade the A-6.

Excuse me, Senator, he has the life cycle cost. Sam Sayers is the A-6 program manager, and he may be able to answer your life cycle cost question.

Captain SAYERS. Recently, the Naval Air Systems Command completed a life cycle cost study for the A-6 upgrade over a 15-year period. The savings that we estimate at this point are well over \$1 billion, over the 15-year period, based on the commonality savings going to the F/A-18, the AV-8B, and the F-14.

Senator D'AMATO. Thank you very much.

BUDGET AMENDMENT ON A-6E FUNDING TERMINATION

Just one other question. You are working on a budget amendment to convert the money originally requested for line termination for the A-6E, to recommend the long lead funds for the fiscal year 1986 buy. What is the status of that budget amendment?

Admiral SCHOULTZ. Senator, I know that it is being worked. As you know, we have \$19.7 nonrecurring in the A-6 line, and \$15.1 was programed to close down the line. We are in the process of re-programing that, which would be the advance procurement for 1986.

We are looking at that, but I don't know exactly the status of it. It is being worked.

Senator D'AMATO. Would you let us know?

Admiral SCHOULTZ. Yes, sir.

Senator D'AMATO. One other question, Mr. Chairman.

TIME PRODUCTION COSTS FOR A-6F

Admiral, if in fact you had broken that A-6E production line, what cost would the Navy face in restarting the line for production of the A-6F?

Admiral SCHOULTZ. I had better take that one for the record, unless, Admiral Busey, you happen to know that one. I know it was looked at, Senator, but I just don't have that number.

Senator D'AMATO. If you could give us that information for the record, I would appreciate it.

Admiral SCHOULTZ. Yes, sir.

[The information follows:]

A-6E

Restart costs for FY-88 start are as follows:

[Millions of dollars]

	Fiscal year—	
	1986	1987
Production line start up	9.0	21.0
Advance procurement		49.5

F-110 ENGINE UNIT ACQUISITION COST

Senator D'AMATO. Thank you very much, Mr. Chairman.

Senator STEVENS. Thank you, Senator.

Do you have any estimate of the unit acquisition cost for this new engine, the F-110? Let's put it this way, let's put it for the

whole package that you are talking about on the upgrade for the F-14. The engine, the improved avionics, and the new radar, what is that package going to cost?

Admiral SCHOULTZ. \$800 million was the cap that the Secretary put on the R&D for the effort, sir.

Senator STEVENS. That is just R&D. What is the whole thing going to cost?

Admiral SCHOULTZ. I think, because the contract was just given to Grumman last week, we are negotiating that cost, Mr. Chairman. I don't think we know what that exact cost is going to be. I will let Admiral Busey try that.

Admiral BUSEY. Mr. Chairman, as you know, we have selected the F-110 engine out of the Air Force competition. We are asking Grumman, in the contractual document that is on the table for their review now, to work with General Electric to negotiate a price for us. Our objective is a price that is within 5 percent of the Air Force price for that engine.

I don't know yet what our cost per engine is going to be because we are still in the negotiation phase. Our buy, of course, will be significantly smaller than the Air Force buy, but our objective for that marinized engine—it will have to have some changes made to it—will be no more than 5 percent in excess of the Air Force cost.

F-110 ENGINE OPERATIONAL REQUIREMENT

Senator STEVENS. Do you have a valid operational requirement for the F-110 engine now?

Admiral SCHOULTZ. Yes, sir. We have had that valid requirement for a long time. We have had it since we bought the airplane, as a matter of fact. The TF-30 has been the cause of about one-third of all our accidents in that airplane. The pilots end up flying the engine, and not the airplane. They have to lock the throttles above 30,000 feet in after-burner, and just fly the airplane within the parameters of the engine. They can't move the throttle.

About 1 month ago, we had one fellow who moved the throttle, had an engine flame-out, and the aircraft slid to one side. Very fortunately, he got the other throttle back, maintained control of the airplane, and then the other engine failed on him, too. On the way down, he lit off one engine at 1,200 feet, zoom climbed and got a cross-feed and started the other engine.

This is not untypical of the problems that we have had with that engine. Safetywise, we need a new engine, and that is why we have accelerated, and we are going to put it in the fiscal year 1987 aircraft, and that is before we even make the D improvement. That airplane should have had that engine a long time ago.

Senator STEVENS. It is a thrust requirement, basically, isn't it?

Admiral SCHOULTZ. No, sir, it is not. It is more of a reliability and maintainability requirement. We need the ability to move the throttles and fly the aircraft. It does have an increase in thrust, but that is certainly not the critical part.

AIRCRAFT COMPETITION

Senator STEVENS. Why didn't you compete 100? The Air Force competed 100 of their aircraft.

Admiral SCHOULTZ. We followed the Air Force competition. We think that the Air Force did a very fine job of fairly competing those two engines. We can't buy an engine by ourselves in the Navy, because we are not big enough, so we have to satellite on what the Air Force does.

NONCOMPETITIVE SELECTION OF F-110

Senator STEVENS. The Air Force is still buying F-100's. They have not told us that they are going to stop buying F-100's. You just selected the F-110 without any kind of competition for your use.

Admiral SCHOULTZ. Yes, sir. We had an option to go either one, and this one fits into that aircraft very well, and does all of the things that we need to do. We took their biggest part of the buy. If they had gone the other way, then we would have looked at the other one. It is cheaper for us to get the F-110, when the Air Force is buying it for 75 percent of their production.

We will have to marinize that engine because we have different corrosion control requirements for the salt water environment and that sort of thing. So we have to do some different things to it to make it compatible with at-sea operations. Also, the Air Force puts their accessories in the aircraft, and we put them on the engine. We will make some modifications to it.

Senator STEVENS. Both of these engines will have to be marinized. The Air Force has been touting very heavily to us the cost savings that have come about from their competition. Your numbers were not included in their competition. Why didn't you compete?

Admiral BUSEY. There were options in the Air Force competition for Navy aircraft. In fact, that is what we will operate off of in our procurement of the General Electric 110 engine. We are using an option in the competition that the Air Force ran, and we will obtain very similar warranty savings to that which the Air Force has achieved.

Senator STEVENS. They end up with a 70/30 buy on 110's versus 130's. I assume that there is an option on both buys. You, without being part of the competition, as we see it, you picked one over the other. There may be some reasons for that, and that is what we are trying to find out. What reason led you not to compete the buys as far as the 110 is concerned?

Admiral BUSEY. Had we duplicated the Air Force's competition, it would have taken us another 1½ to 2 years, and it would have cost additional dollars for a separate competition.

The Secretary's guidance to us a year ago was that we will select an engine from the Air Force competition. Therefore, the competitors knew all along that the Navy was going to make a selection, and that we would not run our own competition. Options were included in the pricing that was offered to the Air Force for a Navy buy.

As Admiral Schoultz has mentioned, our requirements are significantly less than the Air Force. I believe 60 to 70 engines a year is what we will buy, and that is a very small percentage of the

overall Air Force buy on the 75/25 split that they have decided on for this year.

Senator STEVENS. The commonality factor, then, is not going to go to the engines as far as these new wings are concerned, is that what you are saying? You are only going to use the F-110 on the 14 upgrade?

Admiral BUSEY. Yes, sir, but that engine will be common with the larger Air Force procurement. We will have interservice agreements for the depot repair of those. We will look to buy our spares for those engines in connection with the Air Force. So that commonality will apply across the services.

UPGRADE COST FOR F-110

Senator STEVENS. What is the cost of the upgrade for the 110 to meet Navy requirements going to be; can you do it within the money that we provided last year, \$150 million?

Admiral BUSEY. \$150 million is the guidance that we have, and we believe that it can be done for that price.

R&D REQUIRED TO MARINIZE ENGINE

Senator STEVENS. How much R&D is really required to marinize that engine? Wasn't it part of the competition that it could be marinized? Why do we now have to have R&D on top of R&D.

Admiral BUSEY. There are some modifications that will have to be made to the Air Force 110 engine to make it compatible with the F-14. For example, the accessory components will be mounted on the engine. We will have to put a plug, as we call it, of about 51 inches in length to accommodate it to the air flow construction of the F-14. We have to integrate the engine into the airframe. Those are the R&D costs. Those costs really don't go toward doing any further development of work on the engine itself.

Senator STEVENS. It is not engine R&D. It is the R&D to use the engine in your airframe.

Admiral BUSEY. Yes, sir.

A-6

Senator STEVENS. Back to the A-6, we note that there is a \$500 million ceiling on the A-6 upgrade. Does that involve a fixed price-type development contract? Do you have a fixed price on that?

Admiral BUSEY. That is the contract that we have presented to Grumman a week ago last Friday. It was a fixed price R&D contract to upgrade both the F-14 and the A-6, with a total cost cap of \$800 million for the F-14 and \$500 million for the A-6.

Senator STEVENS. What is the rate of production in that contract? This is the A-6F now, right.

Admiral BUSEY. It is the A-6E upgrade, sir, we are calling it, and not the A-6F.

Senator STEVENS. It has a different engine, and it has a different configuration. What else does it have different? It has different avionics, and a different computer. It is sort of like a friend of mine, every time he buys a new Cadillac—I do have a wealthy friend

here and there—he insists on putting a 1967 body on whatever new Cadillac it is, because he wants to wear his hat in it. [Laughter.]

So it looks like the same car every year, but it really isn't because you have to look inside of it. This one is going to look like the same one, but everything inside of it is going to be different.

Admiral BUSEY. No, sir.

Senator STEVENS. But you are still going to call it an A-6E. Is that right?

Admiral BUSEY. Yes, sir, an A-6E upgrade. Not everything will be different. The mechanical components of that airframe externally will, of course, look the same, the hydraulic actuators, the fuel tankage, many, many similar systems.

Senator STEVENS. Does someone have some aversion to F down there, because it looks to me like an F.

Admiral BUSEY. F connotes an entirely new aircraft, and that is not what we are doing. It is not what we want to do. We really want to do only as much upgrading as necessary to give us the commonality and the reliability and maintainability.

Senator STEVENS. We could go on and on with this. My staff wants to know what was the difference between D and E.

Admiral SCHULTZ. I knew that was coming.

Admiral BUSEY. I was afraid you would ask that question, sir.

Senator STEVENS. We will go along with you, whatever you want to call it, just as long as it doesn't cost too much money, that is the main thing.

PRODUCTION RATES IN CONTRACT

Admiral BUSEY. Sir, you had asked what are the production rates that are in the contract.

Senator STEVENS. Yes.

Admiral BUSEY. This is an R&D contract, the development contract, so there are no production options attached thereto. That will have to be negotiated in a follow-on manner.

Senator STEVENS. All right.

Senator Rudman.

Senator RUDMAN. Thank you, Mr. Chairman.

I would expect that the reason why we don't have F here is for a reason that is very obscure and not fully understood. I think there is a reason, but we won't learn about it at this hearing. I suspect I know what the reason is, but we can talk about that some other time.

Senator STEVENS. I think it is because they are liable to have to have another one before they get to the ATA, and they don't want to have burned out that letter.

Senator RUDMAN. I think that may have something to do with it.

F/A-18

Let me come back almost a year in time, Admiral Schoultz and General Fitch, to the F/A-18. I think you will recall the discussions we had at that hearing and subsequent to the hearings. I wonder if you might bring the committee up to date on the range performance of that aircraft, and in particular, in order to have it clearly understood what we are talking about, could you again

brief us as to what the original specifications were for that aircraft at the time of IOC, changes were made in that specification, and what you are finding both in the Marine air wings and the Navy wings.

Admiral SCHULTZ. The original specification was modified, as you know, as we developed the aircraft. It was one of the problems we had last year. How come you at one time said this, and then the next time you said that. Let me see if someone back here could drag out that information out of their system.

Senator RUDMAN. We can come back and get that. Why don't you tell us what has happened, and then I would like to know those figures.

Admiral SCHULTZ. Yes, sir.

As we were going to use the airplane, as I mentioned last year, General Fitch alluded to the same thing, the people using the airplane are finding out how well it does. We have learned things such as when you make a let-down, you don't put your throttles in idle as you would in other airplanes.

In that airplane, if you put your throttles in idle, the tail-feathers, or the after-burner, moves out to an extended position. If you just add 1 or 2 percent, it closes those off, reduces the drag, and you get another 37 miles for the same amount of fuel. We have had to learn those things. Also around the ship, they have learned that they can go to half-flaps, and they save 200 to 300 pounds per carrier pass.

That is the type of thing that we have been learning while using the airplanes. The Marines, of course, have done an awful lot in the deep interdiction role, which is one of their primary missions. They are now out to 600 miles, and they did that very well.

Bill, do you want to add anything while they are looking for the figures?

General FITCH. Senator, in the case of the Marine operational experience, what we have done routinely, with 4,000 pounds of external stores on the airplane, is exceeded 500 nautical miles in mission radius, and this is with a nominal 50-mile low level run in to the target, five minutes in the target area, and 50 miles low back out.

We have also flown some contingency type scenarios where, again, we have run in as much as 100 miles low level into the target, and we have exceeded 600 miles, and in that case with a high altitude return, no low return. We did in excess of 600 miles flying with the Operation Test and Evaluation Force, the Navy Training Squadron out of Lemoore, as well as the Marine Aircraft Group [MAG-11] at El Torc. In the Marine Corps there is no issue of range.

Admiral SCHULTZ. We don't feel that we have an issue for range, actually, in the Navy either. The DCP, the decision concept proposal, was 550 miles for interdiction threshold. There was originally a high-high escort armament mission of 650 miles, but the one that we finally settled on was the 550 nautical miles interdiction threshold, and that specific profile was flown here off of the East Coast. We feel that we can do that now, and I know that we have no range problem with the F/A-18.

I must tell you, though, we have not had it aboard ship deployed yet. We are just starting that with Constellation. We should learn more about how we employ it aboard ship here in the next several months.

VARIOUS CARRIER MIXES

Senator RUDMAN. The Secretary of the Navy had said, and I am not sure if it was at a hearing or at a meeting that we had with him, that one of the things that the Navy was going to do, in terms of its assigned missions, was to have the kind of a mix of carriers that would allow for the greater range of the other attack capable fighters to operate in consonance with the F/A-18 carrier. Is that still going to be necessary?

Admiral SCHULTZ. The different carrier mixes?

Senator RUDMAN. Yes. Essentially, what he was saying was that you would get into a certain tactical situation where you would not have range that you might need to have the proper distance off of enemy shores, or enemy battle groups, or whatever, and that you would use other of your attack aircraft. You would not send the F/A-18 because you would not want to move the carrier battle group in that close. Is that still something, or is that something that was considered and dropped?

Admiral SCHULTZ. No, sir, that theory, I don't think, was ever advanced by the Secretary. There was an awful lot of stuff in the press.

Senator RUDMAN. No, I talked to him personally about this. I did have this conversation with the Secretary. He did not set it forth as a new doctrine.

F/A-18 RANGE

I hear what you say, but do you have any problems with the F/A-18 range in terms of your mission, and at the same time keeping the proper stand-off distances?

Admiral SCHULTZ. I can answer that categorically, no, Senator. If you have a long range interdiction mission, that you need, that is extended beyond your capable range, you put more fuel in the air and refuel the airplane.

The A-6, of course, carries a heavier load, and it is a fine long distance interdiction type. With a stand-off missile, you would send the A-6s first, probably at night, or in bad weather to begin it. You close the enemy coast, if that is your mission, and as you get closer, you can put more airplanes in the air.

You put more airplanes in the air with less fuel as you get closer, but if you are farther out, you refuel them. We refuel them on a regular basis, as you know. We have been trying to get you out on a ship to show you. We have not done that, I know, and I am sorry, but we are still working on it.

Every time you go out, somebody will refuel. There is always fuel in the air. So that, with a problem landing, they can always refuel. So it is done on a routine basis. You can extend your range just by how many aircraft you configure for fueling.

550-MILE GROSS WEIGHT

Senator RUDMAN. The 550-mile figure is what kind of gross weight? How close to gross are you with that 550-mile figure?

Admiral SCHOULTZ. Depending on whatever your load was.

Senator RUDMAN. That is what I am asking.

Admiral SCHOULTZ. Four thousand pounds of ordnance at 550 miles.

Senator RUDMAN. That would be gross weight?

Admiral SCHOULTZ. No, it wouldn't be quite gross.

Senator RUDMAN. What is the gross weight of this aircraft under normal conditions and normal temperature?

Admiral SCHOULTZ. George Strohsahl is the F/A-18 Program Manager. Unfortunately, I have not gotten to fly the thing off of a ship.

Captain STROHSAHL. Senator Rudman, the take-off gross weight of the aircraft is in the interdiction profile, with external fuel tanks and four MK-83 weapons, is approximately 50,000 pounds.

Senator RUDMAN. Is that the gross weight of that aircraft at normal temperature, sea level?

Captain STROHSAHL. With that type of ordnance.

Senator RUDMAN. Maybe I am not talking about the same thing. Every airplane has a manufacturer's gross weight, and it shall not exceed this. Everybody does, but you shall not exceed it. What is the gross weight of the F/A-18?

Captain STROHSAHL. Maximum acceptable gross weight for this aircraft is 51,900 pounds. Empty, it is about 23,000.

Senator RUDMAN. I understand that. I wonder if I might submit a few questions for the record on that point, which I would like to have answered.

ADDITIONAL FUEL CAPACITY

One last question. Has the Navy any plans presently whatsoever to fund a small program that would study the possibility of any additional fuel for that aircraft?

Admiral Schoultz: No, sir, the Navy does not have such a plan. The manufacturer is, on his own examining that capability. He is doing it on his own, and it is not Navy funded.

Senator RUDMAN. That would be an option, if it worked, that would give you additional nonrefueling range?

Admiral SCHOULTZ. If you wanted it, yes, sir.

Senator RUDMAN. If you wanted it.

Admiral SCHOULTZ. Yes, if we wanted to put that money in the airplane.

Let me ask General Fitch just a last question, Mr. Chairman.

The Marines have had a lot of experience operating this aircraft. I have seen some of the reports. Have you operated this aircraft at that gross weight, 51,900, very often?

General FITCH. I am not sure whether we have operated it right at the limit, but close to it. Fifty thousand pounds is the highest that we have operated it.

AIRCRAFT PERFORMANCE AT 50,000 POUNDS

Senator RUDMAN. I would ask just how the aircraft performs at that weight?

General FITCH. It displays excellent performance.

Senator RUDMAN. Am I correct that the Marines, although no formal proposal has been submitted, are thinking of some upgrade of the F/A-18?

General FITCH. The Commandant of the Marine Corps has considered this, but he has not reached a decision.

Senator RUDMAN. What kind of an upgrade would that be? Would that be a range upgrade?

General FITCH. No, sir, it would be to put the radar beacon, forward air controller RABFAC, as we refer to it, into the aircraft so that we could perform the close air support mission in marginal weather conditions.

OPERATIONAL CAPABILITY AT 50,000 POUNDS

Senator RUDMAN. Coming back to your operational experience with weight. That airplane is operating very well at 50,000 pounds. I would like to know for the record, if there are any flights in the field, not at test facilities, of that aircraft operating at gross weight. I think you can tell what I am getting at. Being a pilot myself, I am just very curious about it.

General FITCH. Yes, sir we can provide that.

Senator RUDMAN. I would like that.

Thank you very much, Mr. Chairman.

[The information follows:]

AIRCRAFT OPERATIONS AT GROSS WEIGHT

LOT V F/A-18 aircraft assigned to Marine Aircraft Group-11, El Toro, CA operated on several occasions during calendar 1983 at take-off gross weights of approximately 49,000 to 50,000 pounds (51,900 is maximum allowable). Representative configuration included three external fuel tanks, air-to-air missiles, pylons, racks and four 1,000 pound bombs. Handling characteristics were benign. Military power take-offs were conducted routinely and the aircraft exhibited no adverse handling or performance tendencies. Performance capability of these attack configured F/A-18's actually exceeded that of current Navy attack aircraft unencumbered with external stores and ordnance. No Marine operations to date have been conducted at maximum gross weight (51,900).

KITTY HAWK DAMAGE

Senator STEVENS. Let me ask you some questions about this article that Mr. Pincas put in the Washington Post on Sunday; I am sure that everyone saw it.

The first question has to come about the Kitty Hawk. What is the cost of the damage to the Kitty Hawk; do we know yet?

Admiral SCHULTZ. No, sir; I don't think I have a price on it. It is not significant, and I think that they can probably do it as soon as they get to port. She operated at high speed, and she still continues to operate at high speed. It is just a couple of cuts in the forward part of the hull, which are not significant.

Senator STEVENS. Maybe you could tell us—maybe you don't want to tell us here, but I hope you will tell us somewhere—how a

Navy submarine could be underneath the *Kitty Hawk* and no one on the *Kitty Hawk* knew it.

Admiral SCHOULTZ. Sir, we had been playing with that submarine. If it had been wartime, we would have killed it 5 days ago, but because they provide a tremendous assist to us in practicing, they had worked with it. They had had S-3's on it. P-3 had worked it. Helicopters had worked it. We had worked it for 3 or 4 days, and we were really kind of tired of that phase of the exercise. They were going south, to go around the peninsula of Korea, and the *Kitty Hawk* was finished recovering airplanes to the north, and she was joining up with the replenishment group to the south. She turned around and came back south, and nobody was really playing with the submarine at that time. They had finished 3 or 4 days worth of it.

I think what he was doing was looking at the replenishment group and seeing if he could find a ship in there. In his baffles, which are behind the ship, which is where his screws make a lot of noise, he wasn't paying enough attention, and *Kitty Hawk*, coming back from recovering aircraft to join up with this other group on the way south, just kind of drove in on him, and there he was. He was submerged on coming up to take a look, or he just had a periscope up.

Nobody was really worrying about where he was. They knew he was in the area. Because it is international waters, and he can go wherever he wants to go, we had no reason to pressure him. He could go underneath the ship, if he wanted to. We were finished with that phase of the exercise and we were now going to practice replenishment at night, and go through the straits, which is always pretty exciting because there is a lot of traffic out there.

The *Kitty Hawk* was to participate in another part of the exercise on the other side of the Korean Peninsula, so they were just moving to the next phase, and somehow he got in the way.

Senator STEVENS. It would seem that someone would be out looking for him just from the point of view of collision. It is not a question of being in an attack mode, it is just the fact that there is something there to hit.

Admiral SCHOULTZ. He is the burdened vessel, and he is required to stay out of the other people's way. You talk to any of our submarines, and we have one at the table with us, Admiral Cooper, they are very, very cautious before they come up. They listen to see if there is any noise around, and when they come up, they take a quick look around to make sure that there is nobody around, so that they can go back down and get out the way. Even our submarines will make a mistake once in a while, as you will remember the Japanese freighter out there.

I think he made a mistake and got in the way of the ship that was closing in. We had no reason to know that he was there, or cared that he was there, really.

Senator STEVENS. I don't want to belabor it, but isn't there someone that is supposed to be telling an aircraft carrier what is underneath it, or what is near it, that it might run into?

Admiral SCHOULTZ. Depending on what the situation is. This was entering the refueling/replenishment part of the exercise. The *Kitty Hawk* had gone north to recover airplanes. She was coming

back with only one surface combatant with her, and they were not looking for the sub.

Then, of course, it was right on the surface or just under the surface, they may not have seen it anyway. It depends on what status they were in. He had no lights on, and we were fully lighted. It is a big ocean.

Senator STEVENS. There are marine hazards other than Russian submarines. I would hope that someone is looking out for the amount of money that we have in the *Kitty Hawk*.

Admiral SCHOULTZ. Yes, sir. The navigator is worrying to make sure that the water is deep enough underneath the keel, and so is the captain, I might add, a lot.

COST OF FUTURE CARRIER OPERATIONS

Senator STEVENS. What about Mr. Pincas' articles, which we all found very interesting reading, about the cost of operation of these carrier groups in the years ahead?

Admiral SCHOULTZ. I read the article, Senator, and I can't give you an official Navy opinion on that. Everybody is wrapped up in the budget thing, and I don't think that we have written the rebuttal yet. I think the Secretary of the Navy is going to respond, and I know that he is going to say something.

BATTLESHIP PROTECTION

Senator STEVENS. What does it take to protect a battleship?

Admiral SCHOULTZ. Concerning that article, probably a lot of it is our fault. We have not educated Mr. Pincas enough to tell him what he really ought to know about those weapon systems. He puts the F/A-18 in there, with its only mission being to protect the carrier. He puts in the Aegis cruiser in there, whose only job is to protect the carrier. The Aegis cruiser was also firing gunfire support and lobbing shells into Lebanon.

Every one of the weapon system that he has pictured in there has many, many capabilities. They cannot only protect the carrier, but they can also project power, they can show force. They can do all of our other naval missions.

Senator STEVENS. Is he right that when we send out a nuclear carrier, we send out all of those things with him?

Admiral SCHOULTZ. I would have to go back and remember what he had with him. We will send ships with the CV, yes, sir.

Senator STEVENS. I wish you would do an analysis of it for the committee and tell us, when a nuclear carrier goes out as part of carrier task force, is the article correct as to the number of planes, tankers, and electronic jammers, and ETC's and submarine aircraft, and antisubmarine helicopters, and the other surveillance systems, TASS. Is this correct?

Admiral SCHOULTZ. If you lay on the mission, and specifically tell me what the mission is, I can tell you exactly how you would structure the battle force. Naval forces are very, very flexible, and that is something that the press has a great deal of trouble grasping for some reason. You can mold that force and develop it for any particular mission. It may be only two ships, or it may be 10 ships, or it may be 15, depending on your mission.

Senator STEVENS. There is no minimum stated as far as we have to protect a carrier?

Admiral SCHOULTZ. Yes, sir.

Senator STEVENS. That is all I am asking you.

Admiral SCHOULTZ. Two ships, two surface combatants is the minimum. I will get you that, and I will give you some range of that.

[The information follows:]

CARRIER BATTLE GROUPS

The composition of a carrier battle group (CVBG) is a function of the tasking of that group and the threat to it. The most significant threat would be a major confrontation with the Soviets where the CVBG would be subjected to attacks by a large number of bombers armed with long range cruise missiles, and attack submarines with cruise-missiles and torpedos. Concurrently, the CVBG may be launching strikes against land and sea targets. For this CVBG to operate effectively and survive in this environment the Navy, based on experience and operational analysis, has structured the notional CVBG as follows: 2 AEGIS cruisers, 2 guided missile destroyers/cruisers, 2 destroyers and 1 or 2 attack submarines. The other extreme is a carrier operating in a relatively benign environment with two surface combatants.

CARRIER GROUP PROTECTION OF BATTLESHIPS

Senator STEVENS. What would be the same thing for a battleship? Is there a carrier group to protect a battleship?

Admiral SCHOULTZ. No, sir. The battleship would be a part of a surface action group, and it would be the centerpiece of the surface action group. It would probably take some destroyers with it that would be primarily oriented toward ASW, because the battleship is not the best ASW [antisubmarine warfare] platform.

AIR COVER FOR BATTLESHIPS

Senator STEVENS. Isn't there any air cover for a battleship?

Admiral SCHOULTZ. There may or may not be, sir, depending on what the mission is and where she is going. If she goes with the carrier battle group, of course, that is the other part of that picture. All of those surface combatants receive cover from the carrier, and at the same time they are protecting the carrier. So it is mutual support.

Senator STEVENS. Didn't we have at least one to protect the *New Jersey*?

Admiral SCHOULTZ. No, sir; she steamed from the Western Pacific all the way across the Pacific, through the canal, on into the Mediterranean, all by herself. She picked up two surface combatants down in the Caribbean.

Senator STEVENS. I mean when she was on station?

Admiral SCHOULTZ. We had a good number of ships out there, primarily not to protect the battleship, but to protect the amphibious ships, which are the most vulnerable ships of all, and the supply ships. The amphibious ships that carry the troops, of course, are the ones that really are limited in their capability to defend themselves.

I relayed a story that somebody asked the skipper of the *New Jersey*, the previous CO: What would you do if an Exocet was fired at the *New Jersey*? The skipper very rapidly responded, "I would pipe sweepers."

Senator RUDMAN. That sounds more like a Marine Corps answer.

Senator STEVENS. I think that is right. I think I would do what the King of Saudi Arabia did and have a group of Stingers standing outside of it all the time. Do they carry Stingers on the battleship?

Admiral SCHOULTZ. I am trying to remember.

Senator STEVENS. It was interesting about the King of Saudi Arabia who wanted Stingers to go on his yacht.

Admiral SCHOULTZ. I don't know about that, sir, and I don't know if they are on the *New Jersey* right now or not. I think we probably put the Stingers that we deployed into the Mediterranean on some of the amphibious ships, and some of the lesser capable ones.

ATTACK HELICOPTER

Senator STEVENS. General Fitch, let me ask you about this attack helicopter. Last year, you were telling us, or someone was telling us about three additional attack helicopter squadrons plus one for the Reserves. There was going to be a competitive acquisition.

Have you had an operational cost analysis of this requirement as requested by the committee?

General FITCH. Mr. Chairman, at this point in time, we have a study ongoing at Quantico, at the Marine Corps Development and Education Command, as to future requirements. As far as the requirement for three additional helicopter squadrons, the Commandant of the Marine Corps has not decided that he needs three additional squadrons.

Senator STEVENS. Then there is no analysis going on as we requested.

General FITCH. There is an ongoing study at Quantico, at the Marine Corps Development and Education Command, which will be addressing that topic. It is scheduled to be completed in about the June timeframe. As far as the requirement itself, there has been no reimbursement established.

MARINE INVOLVEMENT IN JVX

Senator STEVENS. Are you involved now at all in the JVX in the Marines?

General FITCH. Yes, sir; we are very much involved in the JVX, and we have a requirement for 552 aircraft.

Senator STEVENS. Will the Marines be the lead procuring agency as far as the JVX is concerned?

General FITCH. The Naval Air Systems Command will have the responsibility for the procurement. However, the aircraft that will be delivered to the Marine Corps will be some of the first aircraft.

Senator STEVENS. The JVX requirements that the staff shows me show that you are going to get 552, the Navy 50, and the Air Force 80, and the Army 231. So it really is your program, isn't it?

General FITCH. We have the largest share of the requirement, but it is a Navy/Air Force joint program from the standpoint of funding.

Senator STEVENS. I am interested in this, and I think we all understand the need for it, but it is going to be a very costly program.

I am told that it is more costly than either the B1B or the MX, the JVX system.

General FITCH. As I understand it, Mr. Chairman, the total cost for development is \$2.25 billion. I do not know what the development costs are for the other systems.

PROJECTED COST OF JVX PROGRAM

Senator STEVENS. We have received a projected cost for the JVX program at \$35.9 billion on a then year dollar concept. We wonder why we have to be driven by a 913 aircraft program. We are not certain that the Army needs it. They don't seem to want it too much either. They withdrew from it.

Why don't we scale this down to meet the Marine needs, Admiral, do you know?

Admiral SCHOULTZ. I think the Army bailed out of the R&D, but they would like to have the airplane later on.

The aircraft that we are going to build is going to be primarily built to the Marine requirements. The Army, if they want to come in and change it later, will have to either modify their requirement or modify the airplane on their own.

Senator STEVENS. Does it have to be as costly a program as it is if it is solely for the Marines? It just seems that developing it to meet the requirements of the four program managers, the cost of the Marine JVX is going up.

We would like to inquire as to what would be the cost to have JVX become solely a Marine aircraft, and not have the requirements met for the Air Force, the Army, or the Navy. Just make it strictly a Marine Corps project of 552 planes. What would be the cost of 552 planes, would like to have that for the record.

Admiral SCHOULTZ. I am going to have to take that for the record, Mr. Chairman.

We are looking, of course, as I mentioned before, at a lot of variations of the Navy mission for mining, possibly use it for air refueling, ASW, vertical lift, carrier-on-board delivery. We are looking at whether the forward wings could take a conformal antenna and use it for airborne early warning. It could be one of those airplanes that we could get great commonality in the airframe and multiple mission. We just don't know what the technology will bring us.

[The information follows:]

JVX

The exact cost cannot be accurately computed because the final production configuration has not yet been determined. The projected recurring flyaway cost for the Marine Corps version of the JVX is \$15.3 million (FY-84 dollars). The total program cost for 552 USMC aircraft is projected to be \$22.4 billion in then year dollars.

CONTROL OF OUTYEAR COSTS

Senator STEVENS. I understand, but the outyears are inhibiting this committee more than this year, and we are going to have to do something to try and get control of those outyear costs now, or we are really going to be in a bind in 1987.

I would like to see, instead of trying to cut and paste this year, if we can't do something to make certain we can make the budget re-

straints for 1986 and 1987 at the same time that we meet them this year. It would be much easier for everybody if we knew where we were going, and not have an annual cut and paste session where we try to trim this and trim that, and we don't look downstream to see what we are doing.

The J VX, it is sticking up there awfully large now. It is bound to be a target either this year or next year in terms of people who will want to cut out the system entirely, unless we get it down to the point where it is manageable in terms of the predictable level of the budget for the period ahead.

Gentlemen, I am sorry, I have to go to a leadership meeting. I think Senator Rudman has no more questions. I will submit the balance of my questions to you. I am sorry that we have to terminate this at this time.

We will have another meeting at 9:30 on Wednesday, March 28, to receive testimony of the military implication of the SALT violations by the Soviets.

SUBMITTED QUESTIONS

I do appreciate your help, gentlemen. I will submit the balance of those questions, if I may.

Admiral SCHOULTZ. All right. Thank you, Mr. Chairman.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

STATUS OF CARRIER FORCE AIRCRAFT

QUESTION: Admiral Schoultz, you say the Navy is not acquiring sufficient quantities of aircraft to attain its force structure goals without increasing the age of the force. Yet the Air Force--in its own fighter road maps--accepts a near-term aging of its force in return for eventual modernization. Why couldn't the Navy accept near-term aging of its force?

ANSWER: An aging force is not desirable because of increased maintenance costs of manpower intensive hardware and old technology. The Navy must accept some near-term aging because of fiscal constraints. An annual average procurement of approximately 355 aircraft is required to preclude aging the force. The FY-85 budget request is only 287 aircraft.

QUESTION: How much is your acquisition rate driven by the 15 carrier battle group requirement?

ANSWER: The Navy aircraft acquisition rate is one part of a combined strategy to modernize the current force structure while also building to support 15 carrier battle groups. This strategy includes retrieval of aircraft from storage, service life extension and upgrades to existing aircraft, and new procurement. The proportional contribution of each element of this strategy is not easily quantifiable and would change with changes in requirements.

QUESTION: Would this be the case if Congress decided on the early retirement of existing carriers such as the CORAL SEA?

ANSWER: The acquisition rate of naval aircraft is a function of the number of existing carriers. How the acquisition rate would change based on a decrease in the number of carriers would depend on a cost/benefit analysis of the current aircraft program. This program consists of retrieving aircraft from storage, inducting existing aircraft for service life extensions, weapon system upgrades, and new aircraft procurement. Decreasing the carriers by one does not automatically reduce aircraft procurement by one carrier's worth of aircraft.

QUESTION: Why shouldn't we revisit the 15 carrier battle group issue? Is it affordable under current budget constraints?

ANSWER: The requirement for 15-carrier battle groups is based on the best judgment of the Department of Defense in determining the minimal force needed by the United States to carry out its national policy, be it peacetime commitments or wartime protection of U.S. interests. This requirement, which originates with the Unified Commanders-In-Chief, has been and remains a major objective of the current administration.

A force level of 15-carrier battle groups is affordable. To help assure its affordability, the Navy continually reviews its programs to ensure that only those offering the highest potential, and satisfying the most urgent needs, are funded. Additionally, the Navy is only building to 14 active carrier air wings. A reserve carrier air wing will be assigned to the 15th carrier.

AIRCRAFT REQUIREMENT FOR 15 CARRIER FORCE

QUESTION: With respect to attaining the 13th and 14th air wings, how many of what types of aircraft in your 1985 request are needed to support the 1987 initial operating date of the last wing?

ANSWER: The following numbers and types of aircraft requested in the 1985 budget are needed to support the stand-up of the 14th air wing: 24 F-14, 32 F/A-18, 6 A-6E, 6 EA-6B, and 6 E-2Cs. Approximately, 130 aircraft are required to support the stand-up of a nominal air wing. The remaining aircraft to fill out the 14th air wing and provide the necessary support will come from desert storage, service life extension of existing aircraft, and some FY-84 and FY-86 procurement.

QUESTION: Provide for the record and explain the changes to your aircraft requirements as reported to Congress in the March 1983 Tactical Air Power Requirements Report.

ANSWER: The requirements delineated in that report, which was a onetime document prepared by OSD, remain essentially valid. The Navy annually reviews aviation requirements and updates its long-range requirements with publication of The Naval Aviation Plan. This year's plan will be published in June 1984 and the Navy will provide it to the Committee.

QUESTION: For the record, indicate which aircraft can be taken on board each of the 15 carriers and the year that capability will exist.

ANSWER: All of our deployable carriers can operate all of the Navy's carrier-capable aircraft, except the F/A-18. All existing carriers are being equipped with ship alterations during overhaul or SLEP which will make them compatible with the F/A-18. New construction carriers will be capable of supporting the F/A-18 upon delivery. The following is the current schedule for initial employment of the F/A-18 on the respective carriers:

<u>CV/CVN</u>	<u>INITIAL F/A-18 Employment</u>
USS CONSTELLATION	1985
USS CORAL SEA	1985
USS MIDWAY	1987
USS ROOSEVELT	1988
USS INDEPENDENCE	1988
USS AMERICA	1988
USS ENTERPRISE	1989
USS KITTY HAWK	1990
USS SARATOGA	1990
USS NIMITZ	1990
USS LINCOLN	1991
USS VINSON	1991
USS FORRESTAL	1991
USS ENTERPRISE	1993
USS WASHINGTON	1993

F/A-18 capability for USS KENNEDY and USS RANGER has not yet been programmed. USS CORAL SEA is scheduled to retire as a deployable carrier in 1992.

F-14A/D

Question: You are requesting \$294 million to begin an \$800 million R&D effort to upgrade the F-14. This includes a new engine (F-110), improved avionics and a new radar. Do you have any estimate of the unit acquisition cost?

Answer: The average unit recurring flyaway cost for the F-14D is estimated to be \$30.83 million in Fiscal Year 1984 dollars

F-14 UPGRADE

QUESTION: Why does the program require a fiscal year 1988 production incorporation of these upgrades?

ANSWER: Operational capabilities of the improved avionics, radar upgrades, and F110 engine are required to meet the existing Soviet threat as well as the anticipated 1990's threat environment. Anti-jam communications, improved electronic counter-countermeasures, improved reliability and maintainability, and improved survivability will be developed under a firm fixed price type contract to minimize costs and compress the development schedule. Any delay in F-14D production will increase program development costs and reduce the number of upgraded F-14D systems available to the fleet.

F-14A/D

QUESTION: What would be the impact on the program if we halved your proposed request, but permitted you to start the engine upgrade?

ANSWER: The F-14D program, which includes an avionics upgrade, a radar upgrade, and a new engine, could not be executed as it is presently structured. The F-110 engine marinization and integration effort could be accomplished; however, reduced funding for the avionics and radar upgrades would add costs to the total F-14D full scale development program and compromise the price and cost advantages of the Fixed Price F-14D development strategy. Earliest possible introduction of the avionics and radar improvements is required to counter Soviet initiatives in electronic countermeasures and air-to-surface missiles.

F-14 UPGRADE

QUESTION: How will the F110 improve the F-14's acceleration and on-station availability?

ANSWER: The F-110 engine has better thrust and specific fuel consumption (SFC) which will improve acceleration times (example: at 35,000 feet, .8 MACH to 1.4 MACH: TF-30, 109 seconds; F-110, 72 seconds) and on-station times (example: at 150 NM from the carrier: TF-30, 2.35 hours; F-110, 2.5 hours).

QUESTION: How does an upgraded F-14 improve overall battle group survivability? What did your Outer Air Battle study conclude about the need for an upgraded F-14?

ANSWER: The F-14D's upgraded capability will significantly

improve overall carrier battle group survivability. The continued improvements in Soviet electronic countermeasures and launch platform performance will be countered by an [deleted]

[deleted.] Improved reliability, maintainability, and supportability of the F-14D will provide higher aircraft availability, increasing the sustainability of the carrier battle group's air defense. The upgraded radar will incorporate

(d) improvements and allow the AWG-9/PHOENIX weapon system to retain its multiple launch, multiple track capability in a jamming environment.

The Outer Air Battle study concluded that an upgraded radar [deleted] and incorporation of an advanced air-to-air missile were required to maintain the F-14 capability in the Outer Air Battle.

F-14A/D

Question: Your F-14 upgrade program includes a proposal to switch from the TF-30 engine to the GE F-110 engine on all F-14D aircraft. Why did you decide not to compete this engine program? Wouldn't there have been cost savings to be gained from competing?

Answer: Although the Navy did not conduct a separate formal source selection, the benefits from the Air Force competition have been realized as the Navy engine production costs are minimized through economies of scale. It is very unlikely that any benefits could have been realized by conducting a separate, stand-alone Navy competition.

F-14 ENGINE

QUESTION: Could the higher thrust F-100 be used with the F-14?

ANSWER: The Pratt & Whitney F-100 engine does possess a higher thrust rating than the TF-30 and could be utilized with the F-14.

QUESTION: The subcommittee received a letter from the Navy dated March 14 which said that you intend to use \$7.1 million appropriated in FY 1984 for the F-14 squadrons program to start the R&D on accelerated development of the F-110 engine for the F-14.

Why did the Secretary of the Navy decide to accelerate the engine upgrade effort to permit incorporation of the engine into FY 1987 production aircraft?

ANSWER: The Secretary of the Navy's decision to accelerate the engine upgrade effort will allow the Navy to benefit from USAF flight test data, competitive pricing, and production economy of scale, while avoiding the cost of a separate Navy competition. These benefits, combined with the safety related problems of the TF-30 engine, support the earliest possible incorporation of the F-110 engine in production aircraft.

A-6 UPGRADE/A-18

QUESTION: At what rates of production do you intend to procure the A-6F?

ANSWER: There are no plans for an A-6F aircraft. The Navy

will upgrade the A-6E aircraft and the procurement rate of the upgraded aircraft has not been established. To fill the medium attack, all-weather requirement through the mid-1990's would require a minimum of 32 aircraft per year.

QUESTION: Wouldn't it be more economical to close the A-6 line, and ramp up the F/A-18 production, since A-6 and A-18 upgrade development costs are essentially the same?

ANSWER: No. It is not a question of cost. The A-18, an upgrade of the F/A-18 which was proposed by McDonnell Douglas to the Blue Ribbon Panel, was not intended to satisfy the range/payload requirements contained in a Tentative Operational Requirement (TOR) of a new advanced all-weather medium attack aircraft. Some elements of the contractor design are being studied by the Navy for inclusion in future programs.

A-6 UPGRADE/A-18

Question: Is it feasible to add internal fuel capacity and external fuel stores to the A-18 airframe?

Answer: McDonnell Douglas, the prime contractor for the F/A-18, is examining the potential merits of an extended range variant of the F/A-18 as an independent research and development effort. Technical analysis and wind tunnel testing have commenced with a dorsal-modified fuselage (greater internal fuel capacity) and with larger external fuel tanks.

A-6 PRODUCTION AND MODIFICATIONS

QUESTION: You seek \$214.6 million for six more A-6E's including \$15M to close out the production line. How many A-6's will be introduced each year for the next five years under the conversion, life extension, or depot level maintenance programs?

ANSWER: Thirty-five A-6E aircraft are programmed to be retrieved from desert storage over the FYDP: three in FY 1985, eight in FY 1986, eight in FY 1987, and sixteen in FY 1988. A-6E's currently in the inventory will receive structural improvements to the aircraft wing to extend the service life beyond 1990. That schedule is: six in FY 1985, twenty in FY 1986, twenty-four in FY 1987, twenty-four in FY 1988, and twenty-four in FY 1989. Additionally, A-6E's currently in the inventory will be receiving weapons system upgrades throughout the FYDP.

QUESTION: I understand that there are 35 A-6Es in storage in the desert which could be introduced into the conversion program in lieu of procurement. How many of these aircraft are scheduled to your 1985 program?

ANSWER: All of the 35 A-6Es in the desert are programmed to be returned to the active inventory during the FYDP. This conversion-in-lieu-of-procurement (CILOP) program commences in FY 1985 when three of the stored aircraft are programmed to be retrieved for upgrading to fleet configuration.

QUESTION: Why can't six more of those aircraft be introduced into the program in lieu of the procurement of six new A-6Es?

ANSWER: The A-6E procurement request of six aircraft is needed in addition to the retrieval of aircraft from the desert in order to meet requirements.

QUESTION: Your requirements for the A-6E have increased more than 40 percent since last year. Why with the F/A-18's coming into service has the A-6 requirement gone up so much? How has the threat changed since last year?

ANSWER: The increase in A-6 requirements was not in response to a one-year change in threat. It is the result of a Navy study to determine the best composition for future airwings to meet the threat of the 1990's. That study determined that we need 20 A-6 aircraft per airwing vice 10. These aircraft will meet the long range attack requirements and also fill the tanker role using a new aerial refueling store.

QUESTION: What years will the 35 A-6Es currently in storage in the desert be introduced in the conversion program?

ANSWER: The 35 A-6Es currently in desert storage are programmed to be retrieved for fleet upgrade as follows: three in FY-85, eight in FY-86, eight in FY-87, and sixteen in FY-88.

A-6E

Question: Why do you need \$20.5 million for change allowances and for non-recurring costs during a program's last year of production?

Answer: The total is \$21.5 million. \$15.1 million is non-recurring for line shutdown. Another \$4.6 million is the non-recurring for incorporation of several safety of flight, and reliability and maintainability engineering change proposals (ECPs). The 1.8 million change allowance is the normal two percent of airframe budgeted for unidentified configuration changes at this stage of production.

Question: What would the impact if those funds were denied?

Answer: The safety of flight and performance ECPs would not be installed in the FY-85 aircraft. Further, the Navy would not be able to preserve or transfer production tooling for future production, manufacture of spares and maintenance if the production line is shutdown.

F-14A/D

Question: If production of new A-6s and F-14s were interrupted until A-6F and F-14D production were started, could a combined EA-6, A-6E/F-14 modification and depot level maintenance program and spares procurement be developed to sustain the production base?

Answer: If a production gap is created, the introduction of a modification and depot level maintenance program combined with continuing spares procurement would not, by itself, provide retention of a production base adequate to permit timely resumption of production.

Currently, an A-6 modification and depot level maintenance program is in place at Grumman and is expected to continue through 1987. If the production line is shut down, an \$18.6 million per year increase will be required in this modification line in fiscal year 1985, fiscal year 1986 and fiscal year 1987 as a business base adjustment. This adjustment provides the sustaining engineering funds required to provide the necessary personnel to solve fleet problems which are normally associated with the production contract.

Similarly if a modification program for the F-14 were initiated at Grumman, funding would be required for sustaining engineering.

Both the F-14D and A-6E upgrade will utilize a great majority of the components that are procured or "built-to-performance specifications" which are unique to either the F-14A or A-6E. During a production gap, normal spares procurement would not be sufficient to maintain a continuing production base at these subcontractors, and significant restart and qualification costs and schedule risks would be incurred when restarting the production lines. The number of subcontractors who would not bid at the resumption of production would be expected to be high which would add costly redesign requirements to the program.

The engineering design, analytical skills, and manufacturing skills required for a production line far exceed those required for a modification and depot level maintenance program. Consequently the vast majority of personnel currently involved in these activities would become absorbed in other activities and be potentially unavailable when F-14/A6 production resumed.

Question: Describe that program, its cost and incremental costs over the budgeted and programed CILOP and SDLM program.

Answer: Since the modification and maintenance program mentioned above would not sustain the production base, a comparative cost analysis has not been developed.

A-6/A-18

QUESTION: What aircraft is considered more survivable over the beach, the A-6 or the A-18? Why?

ANSWER: Survivability, the capability of a weapons system to carry out its designated missions in a combat environment, is a function of both susceptibility and vulnerability. Susceptibility, the combination of factors which determine the probability of being hit by a given threat, is scenario dependent. The F/A-18 strike fighter uses speed, maneuverability, and air-to-air weapons to reduce its susceptibility in clear weather, daylight strikes. The A-6E medium attack bomber uses low altitude and terrain following to reduce its susceptibility in all weather, night strikes. The F/A-18 and the A-6E have been optimized for different missions and each aircraft has systems and design features to reduce its susceptibility during those missions.

Navy studies of vulnerability, the ability of an aircraft to survive after taking a hit, show that the F/A-18 is less vulnerable than the A-6. This is primarily due to the fire detection and fire suppression systems of the F/A-18. The A-6E Upgrade will

incorporate similar systems which will provide comparably reduced vulnerability.

FUTURE PLANS FOR THE F/A-18

QUESTION: You seek \$337.9 million in advance procurement to increase the 1986 production rate to 102 from 84 in 1985. How much of this increase is needed to fill active carrier based squadrons?

ANSWER: As currently programmed approximately 50 of the 84 F/A-18s in the FY-85 budget will go to fill active carrier based squadrons. If the FY-86 production rate is increased to 102 aircraft, approximately 71 of the 102 aircraft would go to support active carrier based squadrons. The remaining aircraft would go to fill Marine Corps squadrons and training support for active duty units.

QUESTION: What would be the impact of holding annual F/A-18 production at 84?

ANSWER: The currently programmed replacement of F-4 and A-7 aircraft by the F/A-18 would be stretched out two to three years. Safety, reliability and maintainability improvements to the F-4 and A-7 not currently programmed would have to be initiated.

P-3C

QUESTION: You are requesting \$465 million to start an annual buy of nine P-3C's. This is a 50 percent increase over what you have projected in the past. Why?

ANSWER: The requirement to meet a procurement objective of 317 P-3C aircraft has remained constant. For ten years prior to FY 1983, the P-3C was procured at the rate of 12 aircraft per year. In the past two years, budgetary constraints have reduced procurement to a rate that would stretch procurement through FY 2000. The annual buy of nine is an attempt to reduce this long procurement period.

QUESTION: How many P-3's did the Navy request in its budget submission to OSD?

ANSWER: Five aircraft were requested in the original budget submission, but requirements were reprioritized to provide funds for nine aircraft.

QUESTION: It seems that the requirement for these additional aircraft is to replace the large block of 150 P-3A's purchased in the early 1950's. Why can't these P-3A aircraft be put through a service life extension or a conversion in lieu of procurement program?

ANSWER: The cost to install in these older aircraft the avionics required to meet the increasingly quiet Soviet submarine threat of the 1980's and beyond, and to provide the weight-carrying capability of the P-3C would be about 80 percent of the cost of a new aircraft. The resulting modification would have very limited service life remaining.

QUESTION: Why must your entire fleet of P-3's be capable of

performing exactly the same mission when certain portions of the fleet will be performing predictably less demanding missions (for example, patrols of the coasts of the United States) than others? In other words, why can't there be a "poor man's P-3C" converted out of the best of the P-3A fleet in lieu of additional new procurement?

ANSWER: All P-3 aircraft must be capable of performing the ASW mission, no matter where they are patrolling. It is accepted that, as the Navy proceeds to an all P-3C force, existing fleet P-3 aircraft will have to be continually upgraded to meet the increasing submarine threat. The TACNAVMOD is an example of upgrading older aircraft in an attempt to meet the threat through the late 1980's. The capability of a new avionics suite is required beyond that time frame.

EP-3

QUESTION: Last year Congress denied your request for new EP-3 production funding and added \$13 million to continue your previous program of converting servicable P-3's. You now want to reprogram away that \$13 million and you have deleted all further EP-3 conversion funds. Why has funding for this program been terminated?

ANSWER: The funding for the EP-3 program has not been terminated. There is still modification money in FY 1983 and FY 1984. The Congressionally added \$13.0 million in FY 1984 will remain intact and be used as directed to modify new or existing P-3's to extend the life of the EP-3 force.

QUESTION: What is your program for providing electronic intelligence support to the fleet now that you are not budgeting for the EP-3 program?

ANSWER: The Navy's program for providing electronic intelligence support to the fleet is a Conversion in Lieu of Procurement (CILOP) program to modify 12 low-time P-3C aircraft to a single EP-3E configuration. This modification program will not include "sensor update" at this time due to affordability, but will include an improved communications capability.

AV-8B

Question: You are asking for \$822.6 million to increase production of the AV-8B from 27 to 32. Why is this increase in production needed?

Answer: The Fiscal Year 1985 request for 32 AV-8B V/STOL aircraft reflects a requirement to resolve a current shortfall in the Fleet Marine Force light attack inventory, provide adequate replacement for the AV-8A/C airframes scheduled to reach the end of their service life in 1987-1988, and capitalize on the benefits of production efficiencies to sustain the program's real reduction in unit flyaway cost through Fiscal Year 1985.

Two of the thirty-two aircraft will be two seat TAV-8Bs, critically needed training assets, and thirty aircraft of the lot will be single seat tactical versions. The thirty single seat deliveries will support transition of the last two AV-8C squadrons,

VMA-542 and VMA-513, just as service life expires on the old Harrier airframes. Procurement of fewer than thirty single seaters will delay transition, create a gap between stand down of the older airframes and delivery of the new replacement AV-8Bs, and further exacerbate the shortfall in light attack assets that determined the number of aircraft requested.

Question: In addition to the \$94.3 million for engines and accessories in 1985 for AV-8Bs, how much else is bought offshore?

Answer: In addition to the engines, approximately \$49.7 million will be used to procure aircraft equipment and components from foreign sources.

Question: What exchange rates were assumed in preparation of the budget and what is the current exchange rate?

Answer: The FY 1985 Budget was submitted based upon a \$1.45/pound sterling exchange rate, the current exchange rate is approximately \$1.44/pound sterling.

TAV-8B TRAINER

Question: When will the TAV-8B trainer be ready to train Marine Corps pilots?

Answer: The funding profile submitted in the Fiscal Year 1985 Budget supports a tightly scheduled, cost efficient, but low risk schedule for development of the TAV-8B. First flight of the two seat trainer is projected for December 1986, and IOC will follow six months later, in June 1987.

Question: Why have you allowed the TAV-8B program to trail so far behind the AV-8B program?

Answer: The AV-8B program was originally structured to provide a V/STOL replacement for a depleted and aging light attack force. Emphasis was placed on earliest transition of the service hour limited AV-8A/C airframes. As the first pilots to transition would already be V/STOL qualified AV-8A/C pilots, their transition to the improved, easier to fly Harrier II was anticipated to be simple and straightforward. Fleet introduction of the first AV-8Bs at Marine Corps Air Station Cherry Point has confirmed that expectation.

However, it was recognized a two seat trainer would become essential to efficiently transition conventional pilots and newly designated aviators once the reservoir of qualified V/STOL pilots was depleted. Consequently, every effort was made to capitalize on single seat development and expedite sequential development of a two seat trainer within the constraints of a rigidly constrained budget.

With a start late in Fiscal Year 1983 the project will provide a first flight in December 1986 and deliver the first production trainers to the fleet six months later. Fleet introduction and the enhanced training capability of the TAV-8B will coincide with the exhaustion of the V/STOL-qualified pool of AV-8A/C pilots and the influx of new aviators programmed for 1987.

Question: What are the safety implications of this situation? How do you intend to train the first AV-8B pilots if the trainer is behind schedule?

Answer: Safety is the first priority of the AV-8B transition program. First, the AV-8B aircraft itself has improved handling and flight characteristics built into it as a primary design feature. Second, to prepare pilots for transition, and augment their flight training, a capable suite of three simulators was designed and funded. The first of the three devices was delivered to Marine Corps Air Station Cherry Point, well in advance of the first aircraft delivery. Using our current facilities, we have verified that pilots with prior V/STOL experience can be rapidly and safely transitioned directly to the single seat AV-8B.

As the second and third simulators are delivered, providing a more sophisticated training capability, carefully selected, experienced conventional (CTOL) aviators may be transitioned via a carefully structured syllabus, combining simulators and limited V/STOL introduction in the TAV-8A, directly to the AV-8B.

However, to efficiently transition an expanding volume of CTOL aviators, and newly designated aviators, a two seat trainer becomes essential in the 1987 time frame.

With continued funding support for the program, a safe and efficient transition to an all-V/STOL light attack force will be accomplished.

Question: TAV-8Bs are being purchased out of the AV-8B procurement line. Should AV-8B procurement be cut, what would be the impact on your trainer?

Answer: Normal career attrition and rotation of Marine aviators mandates continuous introduction of new pilots into the V/STOL community. With the increased requirement for V/STOL aviators resulting from conversion to an all V/STOL light attack force, training projections establish the two seat trainer, TAV-8B, as the vital component of the training cycle in the late 1980s. Because the timely introduction of the trainer is critical, trainer procurement must be sustained, even at the sacrifice of offsetting valuable single seat tactical assets, especially Fiscal Year 1985-1988 procurement years.

If AV-8B procurement were cut below the Fiscal Year 1985 request level, two TAV-8Bs would be sustained within the remaining buy - assuming that TAV-8B R&D funds were provided to support development and tooling on schedule.

JVX

QUESTION: The Committee is still concerned about the projected cost of the 913-aircraft JVX program - now at \$35.9 billion in then-year dollars. This program is still more costly than either the B-1B or MX. Aren't the requirements of the Army and Air Force to buy JVX softer than those of the Navy and Marine Corps?

ANSWER: The JVX program involves procurement of 913 tilt rotor aircraft: 552 Marine Corps assault transports; 231 Army medium lift; 80 Air Force long range Special Operations Force transports; and 50 Navy multimission transports for Combat Search and Rescue, Special Warfare, and fleet logistics support. In addition, the Services are evaluating applications for a wider array of future missions; this is in response to FY 1984 Senate Appropriations Report language which requested a list of possible future JVX missions and to the Services' interest in the program's great potential. JVX is a large program because the Services recognized that, despite natural differences in priorities, a pooling of

resources and requirements would lead to a revolutionary advancement in conventional and special forces' capabilities. To date, we have seen no significant technical problems.

Comparison of JVX costs to the 100 aircraft B-1 bomber acquisition costs can be misleading. JVX will provide for larger quantities of aircraft at prices that are a decade removed from the developmental and procurement costs of the B-1. The 1982 JVX estimate was for 1,086 aircraft with an estimated \$3.2 billion developmental cost and \$48.9 billion total acquisition cost. Since then, we have reduced quantities 16 percent to 913 aircraft, reduced developmental cost 23 percent to \$2.5 billion, and reduced total acquisition cost 26 percent to \$35.9 billion. Department of the Navy program cost for 602 aircraft is \$22.1 billion, which includes the \$2.4 billion developmental cost. As we will be procuring on the front end of the JVX learning curve, a reduction in other Services' procurement would affect amortization of developmental costs. It has little impact on production costs, approximately no more than five percent increase on procurement unit costs. When comparing JVX cost to other Selected Acquisition Report aircraft, it is interesting to note that the overall average flyaway cost of the 602 Department of the Navy aircraft is estimated to be \$14 million in constant 1984 dollars.

The Army and Air Force requirements are not softer than those of the Navy and Marine Corps but do differ in urgency and priority. The Marine Corps and Navy requirements represent critical shortfalls in assault medium lift and combat search and rescue, respectively. The Air Force requirement is next in urgency, as their needs are for deliveries in 1993. The Army's need is most distant, with deliveries in the mid-1990's. The Navy gives JVX high priority since the assault mission is central to the Marine Corps' ability. The other Services' priorities are different. Their JVX missions do not fill a prime battlefield mobility need, but function in important support roles such as Special Operations and cargo lift.

QUESTION: Has consideration been given to further scaling back the JVX buy from 913? What would be the cost of the JVX program without the 231 Army "vanilla" JVX, to be used as transport aircraft?

ANSWER: As the services have not requested any changes to their current needs, no consideration has been given to decreasing planned procurement. An important factor to bear in mind is that the Department of the Navy aircraft are on the front end of the production learning curve and, with the Air Force procurement, constitute over three-quarters of the total planned buy. Therefore, the planned Army procurement will occur after most of the production efficiencies have been realized. Since final production configuration has not yet been determined, the exact cost cannot be accurately computed. If procurement does not include the 231 Army aircraft, however, the projected program cost is \$26.8 billion in then year dollars.

Question: If you should encounter developmental problems with JVX, how would you meet the Marine Corps medium lift assault requirements?

Answer: The ongoing Preliminary Design phase is a major risk reduction effort for the follow-on Full Scale Development phase. To date, we have encountered no significant technological problems in Preliminary Design and our expectations of a low-to-moderate risk

total developmental effort are being confirmed. The data developed in Preliminary Design will be assessed in the mid-1985 DSARC level Milestone II review wherein a decision on proceeding into Full Scale Development will be made. JVX acquisition strategy milestones provide adequate time to ensure that Marine Corps assault medium lift requirements do not encounter critical shortfalls. Should JVX encounter unexpected developmental delays, a decision on the nature and extent of measures to alleviate any gap between the 1991 critical need and JVX delivery would address various interim rotary wing program options.

Question: What have your wind tunnel tests on the subscale JVX shown?

Answer: Results of wind tunnel testing, to date, have substantiated JVX predictions and have led to increased confidence in achieving a low risk final configuration for Full Scale Development based upon a design that is building on the success of the XV-15 technology demonstrator. No unexpected technological problems have been encountered.

QUESTION: Why have you changed the wing-folding scheme for the aircraft on-board ship?

ANSWER: The basic concept for JVX wing-folding has not changed since the contractors' February 1983 response to the Navy's competitive Preliminary Design Request for Proposals.

Question: Should the JVX even be going into full scale engineering development at this point?

Answer: JVX is not scheduled to enter Full Scale Development until there is a DSARC level Milestone II review, presently scheduled for May 1985. The current phase of development is a two year preliminary design effort including wind tunnel testing, design trade studies, computer math modelling, and critical component testing. Data developed in preliminary design will be presented to the DSARC as will a full scale development plan, a plan for competition in production, and a cost and operational effectiveness analysis.

ADVERSARY AIRCRAFT

Question: You budgeted \$7 million in FY84 and \$8.2 million in FY85 as unit flyaway costs for adversary aircraft. Is this still realistic in light of the responses to your RFP?

Answer: Defense Acquisition Regulations prohibit discussion of the responses to RFQ's or RFP's in a procurement competition. At this time, the Navy plans to procure new adversary aircraft within the budget profile approved by Congress.

Question: How do you plan to restructure the program?

Answer: See answer 1.

Question: Who has responded to your September 1983 request for proposal on your adversary aircraft and what were the firm fixed price unit costs offered?

Answer: Defense Acquisition Regulations do not permit the Navy to divulge the names of the companies responding to the RFQ, the technical details of their offers, nor the prices quoted.

Disclosure of this information is solely within the purview of the contractors.

Question: When will you make your contract award?

Answer: The Navy anticipates awarding a contract late in the third or fourth quarter of FY 1984.

Question: Are you considering the purchase of any adversary aircraft without full competition?

Answer: At the present time the Navy has no plan to buy any adversary aircraft outside of a competitive environment.

Question: Are you considering the F-20 for this mission? If not, why not?

Answer: Several domestic and foreign manufactured aircraft have been previously identified as potentially capable of meeting the requirements of the supersonic adversary mission. These included the F-20 and the F-16/79, Mirage, Kfir, and other foreign technology aircraft. The Navy will select the aircraft which best meets its requirements from among the candidate aircraft offered in response to the RFQ.

Question: Until it is clear that this program is executable at a reasonable price, why should Congress appropriate additional funds?

Answer: The Navy has an urgent need for aircraft to perform the supersonic adversary mission. Current assets provide less than one-third the flight hours necessary to meet the fleet requirement for adversary training. Failure to address this critical element of combat readiness will seriously degrade the effectiveness of Navy pilots in the air to air and air to ground combat environment.

CARRIER ASW HELICOPTER

QUESTION: Last year Congress provided \$18.7 million for R&D on a variant of the SH-60 LAMPS helicopter with a dipping sonar for this mission. What has happened to the FY 1984 funds?

ANSWER: The SH-60 CV variant program has been restructured to provide for a competition among candidate helicopter airframes. The funding requirements of the modified program in FY 1984 are less than appropriated, making some funds available for other efforts. \$11.46 million of the funds appropriated have been identified as a source of funds for the Enhanced Modular Signal Processor and the EHF SATCOM. Prior approval reprogramming request is being prepared.

QUESTION: How did the Navy restructure this program?

ANSWER: The Navy has restructured the CV ASW Helo program to maximize competition and thereby acquire the weapon system which meets the operational requirement (OR) at the lowest cost to the government. The solicitation is therefore being structured to allow the contractors to bid any configuration of airframe, avionics suite, and sensors which meet the intent of the OR.

QUESTION: Doesn't it now involve a competition between the SH-60F and the re-engined SH-2F?

ANSWER: The intent of redirecting the CV ASW Helicopter

program from sole-source to one of competition was to allow domestic and foreign competitors to offer low cost alternatives of performing carrier inner-zone helicopter missions. A particular airframe, avionics suite, or sensor has not been specified.

QUESTION: Is inner zone ASW procurement fully funded in the five-year plan? Why or why not?

ANSWER: The RDT&E budget is a planning estimate by the Office of the Secretary of Defense (OSD) and does not correspond directly to the RDT&E required to modify a particular existing weapon system to meet the CV Helo mission requirements. The final RDT&E budget will be defined after the competition winner is selected. The production funding is also a planning estimate and will be revised after the competition winner is selected.

QUESTION: Does the Navy know the actual cost of the SH-2F upgrade?

ANSWER: The Navy has restructured the Carrier ASW Helicopter program to maximize competition and thereby acquire the weapon system which meets the operational requirement (OR) at the lowest cost to the government. The solicitation is therefore being structured to allow the contractors to bid any configuration or airframe, avionics suite, and sensors which meet the intent of the OR. It is expected that Kaman Aerospace will participate in this competition but the configuration of the SH-2/T-700 they will propose is not known. For this reason, cost estimates for the SH-2/T-700 ASW helicopter cannot be made until the proposals are received and analyzed.

Question: Is the Navy considering the Anglo-Italian EH-101, as an alternative to the SH-60F and the SH-2F?

Answer: The competition for the CV Helicopter is open to all prospective offerors both foreign and domestic. However, it is preferred that a modification of an existing aircraft rather than new development be proposed. The sources sought must have extensive ASW experience and have built marinized helicopters in the recent past.

TACAMO ECX

QUESTION: FY 1985 aircraft procurement funds were deleted for the E-6A TACAMO aircraft. However, the Navy still requests \$77.1 million to continue R&D. Why did you drop FY 1985 procurement funds?

ANSWER: The Navy's FY 1985 budget submission did not contain funding for initial production of E-6A aircraft because of fiscal constraints in the formulation of the budget.

QUESTION: Is E-6A procurement identified in the outyears of the five-year plan?

ANSWER: Yes. The President's budget contains outyear procurement dollars to purchase the E-6A fleet.

QUESTION: Has the IOC of the E-6A remained the same, despite the change in the procurement funding profile?

ANSWER: The lack of FY 1985 APN funds will force the Navy to restructure the program with a later IOC.

QUESTION: Is the Navy still of the opinion that the E-6A, with its greater range, speed and volume, is superior to an upgraded EC-130?

ANSWER: Yes, the Navy considers the E-6A an important improvement to strategic command, control and communications (C³), the number one priority in the President's Strategic Modernization program. The E-6A [deleted.]

QUESTION: Will it be less expensive to operate and maintain the E-6A aircraft as opposed to EC-130?

ANSWER: No. The operation of a single E-6A is more costly than that of a single, less capable EC-130. The size of the fleet required to complete the mission, [deleted.] [deleted.] makes total fleet operating costs comparable.

QUESTION: Is the E-6A especially needed for the Pacific Ocean communication requirement with our SSBN's?

ANSWER: Yes, the E-6A is needed for improvement in strategic communications. The expanses of the Pacific require longer ranges to "on station" which can be accomplished by the larger aircraft [deleted.]

The requirement for increased range and speed also exists in the Atlantic Ocean [deleted.] and to fully support the North Atlantic operating area.

QUESTION: What are the limitations of the EC-130, in terms of range and speed, to provide connectivity over the Pacific Ocean?

ANSWER: Though the EC-130 is (deleted) operational requirements, Navy studies to date conclude that the EC-130 will be (deleted) due to (deleted). To overcome these (deleted) either a change in the (deleted) thus (deleted) or a (deleted) in the (deleted) of (deleted). The E-6A airframe is needed to provide the (deleted) that (deleted).

QUESTION: Will it be easier to harden the E-6A and its electronics to the effects of EMP (electro-magnetic pulse) than it would be for EC-130?

ANSWER: [Deleted] it is included in initial design, drawing upon experience gained in the Air Force E-3 program. EC-130 EMP hardening is a kit retrofit to existing airframes.

DC-9

Question: You are requesting \$33.9M for two to six used C-9 aircraft. Last year Congress provided \$51M for purchase of at least eight used C-9's. How many aircraft were purchased?

Answer: So far this fiscal year we have issued two request for proposals (30 Sept 83 and 31 Jan 84). We are currently negotiating a proposal received that could provide two aircraft. Request for proposals will now be issued every 30 days starting 1 May 1984 to compete in the very volatile used transport commercial market.

Question: On the average, how much did these aircraft cost?

Answer: At this time no purchase have been effected. However, the used aircraft market indicates an overall increase of 25 to 30 percent in transport aircraft prices.

Question: Your stated requirement for C-9's is "29 or less". If you added eight aircraft with the FY84 funds to the 19 now on hand, what would be the impact of providing funds for no more than two aircraft?

Answer: If we could purchase and support eight aircraft with the FY84 funds there would be no impact to providing funds for no more than two aircraft in FY85. However, proposals received thus far indicate an approximate cost of \$6.7M-7.0M per aircraft not including mobilization modifications of \$4.65M each. These costs coupled with the site support costs (spares, support equipment, pubs, training) of approximately \$3M would place us significantly over budget in FY84. We need flexibility in our budget due to the great configuration variances of used aircraft in the commercial market and our need to have these aircraft, as close as practical in configuration to our current fleet of C-9B's to minimize total life cycle cost of ownership.

Question: What would be the impact of deferring the purchase of the last two aircraft at least one year?

Answer: Delaying funds one year would delay the opening of a reserve site one year as well as reducing organic lift available to meet mobilization requirements.

C-2 COD AIRCRAFT

Question: The Committee understands that Grumman Corporation has notified the Navy of an additional \$13 million in savings on the C-2 multiyear contract. Identify by year where these additional savings occur.

Answer: The C-2A contract is a fixed price incentive contract. Subsequent to contract definitization, a series of program acquisition strategy decisions resulted in a projected cost reduction of \$13M, \$6.5M of which accrues to the Navy as a result of the 50/50 share ratio established in the contract incentive clause. The \$13 million reduction was brought about by

- Manufacture of a new design, higher quality, lower cost windshield heat controller
- Buying the cargo cage assembly from a subcontractor vice building it in-house
- Buying the nacelle from a subcontractor vice building it in-house
- Accelerating machine part manufacture using contractor covered termination liability.

In general, these savings are achieved by the assumption of additional termination liability by the contractor in order to gain its share of the achieved savings. The benefit of these savings will not be fully received by the Government until after the completion of the contract, and a resultant redetermination of cost. The Navy must provide the total funds called for in the contract through contract completion. It must be emphasized that these savings are anticipated based on a continuation of the current economic and production environments and are not recoverable prior to contract completion.

The final contract redetermination will be made following

the delivery of the last aircraft in late 1989. If this situation eventuates, the savings listed below would be in addition to the \$89M previously reported.

Savings achievable by fiscal year are:

	Navy	Grumman
FY-83	1.35M	1.35M
84	.95	.95
85	1.35	1.35
86	1.35	1.35
87	1.5	1.5
	<u>\$6.50M</u>	<u>\$6.50M</u>

C-12 ADMIN SUPPORT AIRCRAFT

QUESTION: Your justification for \$32 million for 12 C-12s states these new aircraft will replace "outmoded" aircraft. What is your current inventory of administrative aircraft?

ANSWER: Administrative missions are flown by transport aircraft classified as Operational Support Airlift (OSA) aircraft. The aircraft which are normally assigned to OSA administrative missions are: 65 UC-12Bs, 18 CT-39E/Gs, 5 T-39Ds, 15 C-1As, 1 U-8F, 2 U-8Gs, and 14 C-131F/Gs. Thirty-two obsolete light/medium transport aircraft assigned to administrative missions were recently retired (1981-1983), without replacement, because of material support problems.

QUESTION: Indicate by year when these aircraft must be retired.

ANSWER: Based on current planning factors, the following are the projected retirements from the inventory. In some of the older models, retirement is based more on supportability than expiration of airframe service life.

Type Aircraft	Projected Retirement													
	84	85	86	87	88	89	90	91	92	93	94	95	96	
CT-39E/G	-	-	-	-	-	-	-	-	1	4	7	2	4	
T-39D	-	-	-	-	-	-	-	-	-	-	-	5	-	
C-1A	-	5	10	-	-	-	-	-	-	-	-	-	-	
U-8F	-	-	-	-	1	-	-	-	-	-	-	-	-	
U-8G	-	-	2	-	-	-	-	-	-	-	-	-	-	
C-131F/G	3	3	8	-	-	-	-	-	-	-	-	-	-	

QUESTION: What would be the impact if the proposed procurement were deferred at least one year?

ANSWER: The impact of deferring the proposed procurement at least one year would be retirement without replacement of selected reciprocating engine aircraft that can no longer economically be maintained. Support mission requirements would be gapped until a replacement aircraft was procured.

UC-12B

Question: Are you planning to compete the total buy of 48 C-12 replacements? If not, why not?

Answer: The Naval Air Systems Command is currently evaluating the merits of competing the UC-12B requirement for 12 aircraft in

FY 1985. The follow-on procurement of 24 aircraft in FY 1986 and 12 aircraft in FY 1987 will be considered in development of the program acquisition strategy.

Question: How much could be saved from such a competitive procurement in lieu of single sole source procurements for three years?

Answer: It is difficult to forecast the economic savings resulting from a competitive procurement of this type. Historically, when all cost factors are considered a reduction in acquisition cost within the range of 10 to 20 percent may be realized.

C-12

QUESTION: To what extent does the Navy request and receive C-12/T-39 support from the Military Airlift Command? If none, why so?

ANSWER: Military Airlift Command airlift requests do not specify a type of aircraft, but describe lift size, weight and departure/arrival time requirements. Consequently, information is not available as to what types of aircraft were utilized to fill Navy airlift requests.

VTX TRAINER

QUESTION: The Navy did not send to Congress a descriptive summary for the Hawk trainer program. Why don't we have this justification?

ANSWER: The descriptive summary was held in abeyance while the VTXTS program was restructured to conform with Congressional direction to procure only carrier capable aircraft. The restructure is now complete. A descriptive summary is being prepared.

QUESTION: Does this indicate there is still some internal infighting over the direction of the VTX program?

ANSWER: Not at all. There is agreement within the Navy on the restructured, single-phase program.

QUESTION: Has the Navy reviewed the VTX program over the past few months to consider yet another rephrasing of development?

ANSWER: In response to Congressional direction contained in the House/Senate Conference Committee Report on FY-84 Defense Appropriations, the Navy has (over the past four months) restructured the VTXTS program and achieved CNO program approval to procure only fully carrier capable aircraft for a FY-91 IOC.

QUESTION: Does the FY 1985 budget request of \$113.4 million fully protect the FY 1991 IOC for the VTX? Are the outyears fully funded?

ANSWER: The FY 1985 budget request fully protects the FY 1991 IOC for VTXTS. The outyears are fully funded.

TH-57

QUESTION: After the Navy takes delivery of the last of the budgeted TH-57's, how much bigger or smaller will the Navy's training helicopter fleet be than in 1980?

ANSWER: After receipt of the budgeted TH-57's, the Navy's training helicopter fleet will be 139 aircraft or 27 more than the 112 assigned in 1980. The additional helicopters are required to meet the 17% increase in curriculum hours flown by each student and a 12% increase in the total number of helicopter pilots to be trained.

QUESTION: Since 1980, how much has the helicopter pilot training load changed?

ANSWER: The average helicopter pilot training load during FY-1980 through 1984 was 563. The President's budget projects 563 pilots trained in FY-1985 and a steady increase throughout the FYDP to match force level expansion plans.

<u>FY-80</u>	<u>FY-81</u>	<u>FY-82</u>	<u>FY-83</u>	<u>FY-84</u>
597	551	613	522	534
<u>FY-85</u>	<u>FY-86</u>	<u>FY-87</u>	<u>FY-88</u>	<u>FY-89</u>
563	583	620	670	670

QUESTION: What would be the impact of delaying all or part of the proposed 1985 buy one year?

ANSWER: Delaying all of the FY-85 TH-57B buy is unacceptable and will have an immediate cost impact. Since the TH-57B is an off-the-shelf commercial derivative helicopter, about 70% of the aircraft cost is based on commercial pricing. Bell Helicopter is planning numerous commercial product improvements in CY 1986, none of which will be compatible with those TH-57B's already purchased. The 1986 unit price is estimated to increase 7%. TH-57B's procured in 1986 will require configuration modifications resulting in additional increased cost for each aircraft.

The Navy has investigated a service life extension/configuration update program for the obsolete 19-year old TH-57A. A detailed cost assessment revealed that the update program was roughly equivalent to the purchase of new TH-57B's and that life cycle costs for the older modernized helicopters were greater. At present, 25 of the 34 TH-57A fleet are being operated on extension of required depot rework; eight of these are on their third extension. Any delay in the TH-57B buy will require more TH-57A extensions and will further increase serviceability and supportability problems. This will degrade aircraft availability, increase organizational level contract maintenance costs, and jeopardize the Navy's ability to achieve its pilot training requirements.

A split of the 1985 buy will incur a 7% cost increase for those delayed until 1986 and a 4.5% cost increase for those purchased in 1985 due to contract renegotiation.

F-14A/D

QUESTION: The Navy now plans to use the General Electric F110 engine in the F-14. This means that 3 of the 4 main fighters (the F-14, F-15, and F-16) can accept a common engine. What would be the impact of requiring future engine development to be of a single common fighter engine with a marinized version to be produced by both a leader and competitive follower?

ANSWER: Basic aircraft mission requirements determine the aircraft size, and thus the thrust class of prospective engines for

that aircraft. Thrust requirements determine gross engine size and weight. Today's technology can tailor size, weight, and configuration within a specific thrust class, and therefore it is quite possible for engines built for different aircraft to be nearly common or have many common components.

It is not a feasible practice, however, to dictate an engine development program of a specific thrust class, and then force an aircraft design to conform to that engine at the expense of optimizing the aircraft design for a particular set of missions.

COMMON EJECTION SEAT PROGRAM

QUESTION: Last year Congress added \$1 million to facilitate and advance your common ejection seat program. What have you done with those funds and what is the current program status?

ANSWER: Although \$1 million was appropriated for common ejection seats development no funds were authorized for this purpose. DoD forwarded letters to the authorization committees on 28 March 1984, requesting authorization be made available. The Request for Quotation (RFQ) was completed on 4 April 1984, and will be published upon approval of Commander, Naval Air Systems Command, the Source Selection Authority. Replies will be due by 10 July 1984.

QUESTION: Are you confident you can offer fair competition for the common seat to both foreign and domestic producers?

ANSWER: Yes. The Request for Quotation (RFQ) specifies that the procurement is subject to the requirements contained in Section 781 of the FY-84 Department of Defense Appropriations Act, to wit: "Section 781 - none of the funds provided in this Act shall be used to procure aircraft ejection seats manufactured in any foreign nation that does not permit United States manufacturers to compete for ejection seat procurement requirements in that foreign nation." To the best of our knowledge, this does not preclude any foreign producers.

CH-53E

Question: You are budgeting \$69.6 million to start multiyear procurement of the CH-53E helicopter. Are you confident that you can achieve the estimated 14 percent savings?

Answer: Yes, we are confident that we can achieve the estimated 14 percent savings. Current multiyear estimates are based on analysis of data and negotiations over the past two years and are indicative of Sikorsky initiatives that have resulted in substantial reductions in the airframe price. Information from ongoing discussions with the prime contractor and the prime contractor with his subcontractors has further increased our confidence that the projected percentage of savings is realistic.

Question: Provide for the record copies of the multiyear proposal and the annual proposal with options due in from the contractor.

Answer: Sikorsky will submit to the Navy, in late April, firm fixed price proposals for the contemplated multiyear contract as well as annual proposals for the same time periods. A comparative analysis of that data will be furnished.

Question: Why has the Navy elected not to include a variable business base clause in the multiyear contract?

Answer: The Navy has elected not to include a variable business base clause in order to maximize the risk assumed by the contractor. However, all contract terms and conditions are subject to negotiation. If it is determined during negotiations that a variable business base clause would benefit both parties, it will be a subject for discussion.

QUESTION: For each military helicopter produced by Sikorsky, what levels of production have been assumed during the period of the multiyear contract?

ANSWER: The following levels of production have been assumed:

<u>Deliveries</u>					
<u>FY</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>Beyond FY-89</u>
CH-53E	7	12	14	14	28
SH-60B	24	18	18	18	84
UH-60A	78	77	96	96	124
HH-60D	0	0	3	24	128
Totals	109	107	131	152	364
<u>Budgeted</u>					
CH-53E	14	14	14	14	11
SH-60B	18	18	18	18	48
UH-60A	78	78	85	96	79
HH-60D	3	25	35	48	44
Totals	113	135	152	176	182

QUESTION: You project a loss rate of one CH-53 per year between 1986 and 1989, nearly twice the rate experienced earlier in the program. With the improving trends in aircraft loss rates, couldn't the projected multiyear buy be reduced by at least one a year and still meet your requirements?

ANSWER: No. The Navy needs CH-53E aircraft now. Our five year defense plan has multiyear procurement of the CH/MH-53E based on affordability and a balance with other programs.

We began fleet introduction of the CH-53E in FY 1981. The Marine Corps has just completed its first six-month deployment of four aircraft, and the Navy has begun its first deployment of five aircraft. Based on this limited experience and historical Navy data on the H-53, the Department of the Navy projected loss rate of the CH-53E is 0.9 percent of the active inventory per year. This is one of the lowest projected loss rates for tactical aircraft in the Navy and equates to one aircraft per year for FY 1986 - FY 1989.

Reduction of the "multiyear buy," based on recent trends, is inappropriate. The Navy annually updates the projected attrition rate for each type aircraft. This factor is incorporated into the program requirement and procurement plan in each budget cycle. A reduction in near term procurement increases unit price and total program cost. Decreasing attrition rates in mature programs do lower the annual aircraft procurement requests and create significant savings in the final stages of the procurement program.

QUESTION: The advance procurement requirement for the proposed multiyear is nearly twice the historical rate per aircraft. Why can't this be reduced?

ANSWER: The \$69.6 million is the total FY 1985 advance procurement requirement, \$47.3 million of which is for multiyear

requirements. These figures were based on initial estimates at the time the budget was formulated. Recent information from Sikorsky indicates that advanced procurement requirements can be reduced well below the initial estimate and is currently under discussion.

JVX

Question: Are the Marines considering a 50mm gun for their assault aircraft? Why?

Answer: The JVX Preliminary Design effort includes an armament trade study to consider candidate self-defense weapons. Consideration has been given to various gun systems, including a 7.62 millimeter and .50 caliber weapons, but no decision has been made. The Services are expected to determine specific armament options during Fiscal Year 1985 based upon the trade study for the Full Scale Development configuration.

Question: Last year Dr. DeLauer and I got into an exchange over the engines to be used for JVX. How many engines are now in the program?

Answer: In December 1982, the Deputy Secretary of Defense approved the JVX acquisition strategy, which remains basically unchanged with respect to engine acquisition. The acquisition strategy provides for an interim engine which is an existing T64-717 General Electric modified for tilt rotor use as well as for a full rate production engine which will be competed as a Pre-Planned Product Improvement (P³I). According to the acquisition strategy, the General Electric T64-717 engine will power the first test articles and the first two production lots of aircraft. The P³I engine will power the remaining test articles and all production aircraft commencing with lot 3.

Question: Do you now require the Modern Technology Engine (MTE) for more strenuous missions?

Answer: Much of the Current Preliminary Design effort is aimed at identifying production engine performance requirements. Specifically, tests are being conducted now on a 2/3 scale JVX rotor which will establish rotor system parameters. Based on these results, a full rate production engine performance specification will be developed and competed in Fiscal Year 1985. Proposals for the full rate production engine are likely to include MTE candidates. An MTE candidate could offer significant benefits in the areas of Reliability and Maintainability, Operation and Support Costs, as well as potential growth for future applications.

PRODUCTION RATES

Question: Provide for the record for all aircraft in budget activity 1 the minimum sustaining, minimum economic and maximum production rates.

Answer: Production rates are listed on the following page:

AIRFRAME B.A. 1

<u>PROGRAM</u>	<u>SUSTAINING MINIMUM</u>	<u>ECONOMIC MINIMUM</u>	<u>PRODUCTION MAXIMUM</u>
A-6E	6	12	72
EA-6B	6	6	24
AV-8B	30	36	72
F-14A	12	12	96
F/A-18	36	84	132
CH-53E	11	12	24
AH-1T	22	60	72
SH-60B	21	60	60
P-3C	6	16	24
E-2C	6	6	12
SH-2F	6	6	48

ADVANCE PROCUREMENT FUNDING RATES

Question: For all aircraft requiring advance procurement, provide for the record a display for each year 1982 - 1986 showing the gross P-1 cost, the advance procurement credit for that year, and the percent of that year's procurement costs advanced funded.

Answer: The following table provides the requested information.

Advance Procurement Funding Rates
\$ in Millions

<u>Program</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>FY86</u>
<u>A-6E</u>					
Gross P-1	263.6	216.7	210.7	225.6	98.1
Adv. Proc. Credit	10.9	7.0	8.3	11.0	-
%	4.1	3.2	3.9	4.9	-
<u>EA-6B</u>					
Gross P-1	243.9	294.9	446.9	384.6	313.4
Adv. Proc. Credit	14.9	16.5	17.7	23.6	18.6
%	6.1	5.6	4.0	6.1	5.9
<u>AV-8B</u>					
Gross P-1	651.0	715.8	756.8	840.6	999.3
Adv. Proc. Credit	86.6	35.9	61.6	98.4	80.4
%	13.3	5.0	8.1	11.7	8.0
<u>F-14A</u>					
Gross P-1	1,025.7	908.5	973.5	965.7	1,059.1
Adv. Proc. Credit	145.8	179.7	202.4	178.8	190.0
%	14.2	19.8	20.8	18.5	17.9
<u>P-3C</u>					
Gross P-1	408.7	287.9	263.8	463.3	496.7
Adv. Proc. Credit	46.8	54.6	52.8	84.4	86.1
%	11.5	19.0	20.0	18.2	17.3
<u>E-2C</u>					
Gross P-1	242.8	283.4	303.3	337.8	368.5
Adv. Proc. Credit	20.2	22.2	26.4	25.6	29.6
%	8.3	7.8	8.7	7.6	8.0

Program	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>FY86</u>
<u>F-18</u>					
Gross P-1	2,073.2	2,409.5	2,348.2	2,566.5	2,836.9
Adv. Proc. Credit	114.7	188.1	248.2	218.4	337.9
%	5.5	7.8	10.6	8.5	11.9
<u>SH-2F</u>					
Gross P-1	183.0	150.7	66.8	70.4	5.9
Adv. Proc. Credit	19.4	19.4	8.9	4.5	-
%	10.6	12.9	13.3	6.4	-
<u>CH-53E</u>					
Gross P-1	209.2	211.3	188.4	229.9	289.4
Adv. Proc. Credit	1.7	7.1	8.1	6.6	22.6
%	0.8	3.4	4.3	2.9	7.8
<u>SH-60B</u>					
Gross P-1	649.9	644.9	481.2	392.0	373.8
Adv. Proc. Credit	103.6	82.8	102.0	58.8	52.4
%	15.9	12.8	21.2	15.0	14.0
<u>TOTALS</u>					
Gross P-1	5,951.0	6,123.6	6,039.6	6,476.4	6,841.1
Adv. Proc. Credit	564.6	613.3	736.4	710.1	817.6
%	9.5	10.0	12.2	11.0	12.0

Question: If there is a trend of increasing percentages, justify that trend.

Answer: Between FY 1982 through FY 1986, the percentage of aircraft production costs covered by advance procurement funding has ranged from 9.5 percent to 12.2 percent but there is no definitive statistical target for advance procurement requests. Advance procurement estimates are generated by a careful examination of the production and installation lead times of Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE). The cost of those items of CFE or GFE which have exceptionally long lead times are then budgeted in the advance procurement accounts to ensure that long lead items are available when needed on the production line. As such, the funding level for each advance procurement request is unique to each aircraft program and is not derived through statistical means.

Question: What would be the impact of adjusting the advance procurement funding rate to the historical average of the last 5 years?

Answer: Assigning an arbitrary statistical percentage to advance procurement funding requests may result in inadequate funding for long lead items. If Contractor Furnished Equipments that have long lead times are not procured on a timely basis, these items will not be available when required on the production line. The production schedule would then be jeopardized causing delays and an increase in the overall price of the weapon system. Late delivery of Government Furnished Equipment as a result of inadequate advance procurement funding will cause delays in the production line or necessitate costly, unbudgeted out-of-station installation charges. In either case, the production stability, efficiency and lower prices

achieved through the use of advance procurement will be compromised.

E-2B ELECTRONIC WARFARE AIRCRAFT

Question: Why are E-2Bs being phased out of service when you are so short of E-2Cs?

Answer: The less capable E-2B's, which cannot provide the command, control and communications (C³) necessary to counter today's threat, are only being retired as E-2C replacements are delivered. The Navy's stated objective is to achieve an all E-2C force by 1988, including 14 fleet squadrons, two training squadrons, and two reserve squadrons. The planned procurement rate of six E-2C's per year should accomplish that objective.

Question: At the end of this year, how many E-2Bs will be in storage at the Davis Monthan Air Force Base?

Answer: Ten (10) E-2B's will be in storage at Davis Monthan at the end of this year.

TAVB

QUESTION: You are seeking \$42.8 million for the first of two ships for an aviation Intermediate Maintenance Activity (IMA). How has this maintenance support been provided in the past?

ANSWER: The mission of the TAVB is to provide the intermediate level of maintenance required to support the Aviation Combat Element of the Marine Air Ground Task Force (MAGTF) associated with the Maritime Prepositioning Ship (MPS) program.

The MPS program is a new concept for projection of a Marine expeditionary force; hence, the requirement for the TAVB is also new. The alternative to the TAVB is procurement of a spare parts supply that is estimated to cost in excess of \$1.2 billion.

Support of the ACEs of currently deployed MAGTFs (Marine Air Ground Task Forces) is provided from a combination of spares support, very limited repair capability, and logistic aircraft. The rapid response, self-sustaining requirement for MPS deployments obsolesce these alternatives.

QUESTION: Possibly this method has not worked perfectly, but why is such a new large investment needed now?

ANSWER: Support of the aviation combat elements of current MAGTFs (Marine Air Ground Task Forces) is provided from a combination of spares support, limited early repair capability, CVBGs (in the amphibious assault environment), and logistic aircraft. The rapid response, self-sustaining requirement for MPS deployments obsolesce these alternatives.

Use of the TAVB facilitates sustaining support of the ACE in the normal "remove, repair and replace" manner at approximately one-tenth the cost of 30 days of aviation spares for a single MPS brigade deployment.

The early introduction of Marine Corps aviation assets frees the equivalent of two CVBGs for sea control or other force projection missions.

Finally, TAVB provides the only viable option to introduce and sustain an ACE within the required response times for a SWA contingency.

MARINE CORPS AVIATION LOGISTICS SHIP

Question: What would be the impact if this logistics ship were deferred?

Answer: If deferred, the Intermediate Maintenance Support identified for the ACE would not be available to facilitate a rapid MPS response. This greatly jeopardizes the survivability of brigades deployed under the stringent response requirement for the MPS operational concept. Deferral could cause severe aberrations to the Navy's CVBG deployments and could adversely impact the Navy capability to provide SLOC defense and respond to other NCA directed requirements.

ECP

QUESTION: In 1983 the Navy saved \$78 million by deferring introduction of numerous engineering change proposals into production aircraft. By aircraft type, what 1984 ECPs have been disapproved or deferred and how much will be saved in fiscal 1984 funding?

ANSWER: Engineering change proposal (ECP) requirements are proposed by the aircraft program manager to correct safety deficiencies and design or engineering defects; to improve producibility; or to enhance aircraft reliability or maintainability. They may be proposed at any time for any year of incorporation. Each is reviewed within the Navy for merit and cost. Approved ECPs require separate funding only in the year in which approved; after that they are included in the aircraft recurring flyaway cost computation.

In 1983, funding for disapproved FY-84 ECPs was removed from the budget request prior to enactment of the FY-84 appropriation. This was done in the Congressional review process and is reflected by the reduction to the budget request. Consequently, a list of FY-84 disapproved ECPs by aircraft type and dollar savings cannot be determined.

Funding for disapproved FY-85 ECPs was removed from the FY-85 budget prior to submission in January 1984. Disapproved ECPs were a result of an internal Navy review process and do not represent savings.

In the current 1984 review, programming adjustments for FY-86 ECPs are being made. Funding adjustments for disapproved or deferred ECPs will be made during FY-86 budget preparation. There will be no funding associated with disapproved or deferred ECPs in the FY-86 budget when submitted.

ENGINEERING CHANGE PROPOSALS

Question: For each 1984 and 1985 production aircraft, how many dollars are budgeted the year after to support the requested ECPs?

Answer: The initial cost of engineering change proposals (ECPs) represents a composite of non-recurring and recurring charges that can be separately priced apart from the baseline aircraft configuration. Once approved and incorporated into the production program, the ECP is subsumed within the aircraft specification and is not separately priced. Therefore, the

cost of 1984 or 1985 ECPs cannot be discretely established in subsequent production years.

A-6

Question: What production engine will be used in the A-6F?

Answer: We are in the process of competing the A-6 Upgrade engine at this time and there are several prospective candidates.

Question: Will the new engine provide weight savings and better fuel specifications than the current A-6E? How much better?

Answer: Since the engine has not been selected yet, we do not know how much weight and fuel savings we can achieve. We do not intend to degrade the current A-6E long range, high payload performance.

Question: What production radar will be used in the A-6F?

Answer: The radar for the A-6 upgrade will also be selected by competitive procurement.

QUESTION: How much of an improvement will that provide in such areas as ground mapping for targeting, air-to-air surveillance, and jam resistance?

ANSWER: Ground Mapping for Targeting: The upgraded A-6E will be capable of approximately thirty times better azimuth resolution and two times better range resolution than the current A-6E. This will greatly improve the acquisition of targets by allowing the bombardier to recognize the intended target far sooner. For example, the bombardier will be able to identify and target a bridge or airfield 5 to 10 times the distance he could identify them with today's A-6E. The upgraded A-6E will also be capable of classifying in weather combatant and non-combatant ships for delivery of long range HARPOON missile type weapons. This capability is not present in the current A-6E.

Air-to-Air Surveillance: The current A-6E does not have an air-to-air radar. The A-6E upgrade will have an air-to-air radar capability compatible with the new AMRAAM missile.

Jam Resistance: The A-6E radar uses a non-coherent waveform, i.e., it does not keep track of phase from pulse to pulse. The current A-6E radar also has limited frequency agility in that the bombardier can slew a narrow band of jammed frequencies to a clear area. The new A-6E upgrade will be both coherent and frequency agile.

Question: When do you intend to start full-scale development of the A-6F?

Answer: We intend to start full scale development of the A-6E Upgrade in October 1984.

Question: How seriously did you consider an upgrade to the A-18?

Answer: The A-18 has been seriously considered. The Department of the Navy's Blue Ribbon Panel addressed in great

detail the all-weather medium attack missions of both the Navy and the Marine Corps, and fully considered alternatives for satisfying inventory and operational requirements. The aircraft options studied included an upgraded A-6E (called the A-6F), an advanced F/A-18 (called the A-18), and a new aircraft design (VMX). The panel's analysis and consideration of all options was extensive and complete.

QUESTION: Even if R&D may be more for the A-18, couldn't that be offset in the long term by increasing the production of the F/A-18 program, rather than keeping the A-6 line open? Why not?

ANSWER: No. It is not a question of cost. The A-18, an upgrade of the F/A-18 which was proposed by McDonnell Douglas to the Blue Ribbon Panel, was not intended to satisfy the range/payload requirements contained in a Tentative Operational Requirement (TOR) of a new advanced all-weather medium attack aircraft. Some elements of the contractor design are being studied by the Navy for inclusion in future programs.

QUESTION: Are your planned production rates sufficiently high rate to warrant the R&D investment?

ANSWER: The exact procurement rate for the A-6E Upgrade aircraft has not been established. To fill the medium attack, all-weather requirement through the mid-1990's requires a minimum of 32 aircraft per year.

QUESTION: Regardless of what we do now about the A-6F, won't the Navy have to begin R&D soon on advanced tactical aircraft, as the Air Force is doing?

ANSWER: The Navy plans to begin definition studies for an advanced tactical aircraft (ATA) in 1985.

A-6F

QUESTION: Has Deputy Secretary Taft directed the Navy to investigate the feasibility of starting a VMX R&D program with a mid-1990's IOC?

ANSWER: Deputy Secretary Taft did advise the Navy to examine the development of a new medium-attack aircraft for introduction in the 1990s. We have been conducting feasibility studies for several years on how best to meet our future tactical aircraft requirements, including all-weather attack. The Advanced Tactical Aircraft (ATA) program is intended to meet this need.

QUESTION: Should the VMX be a multi-mission aircraft?

ANSWER: The Advanced Tactical Aircraft (ATA) program is oriented primarily toward meeting the requirement for a new medium-attack aircraft. We are, however, studying the feasibility of satisfying demands in other mission areas with the same aircraft or a derivative.

NAVY ACCIDENT RATES

Question: The Navy's aircraft accident rates are declining. How much of this improvement is related to force modernization? How much to better pilot retention?

Answer: Force modernization is a substantial contributing factor in the Navy's steadily declining mishap rate. 1983 was our safest year ever, with a rate of 4.33 mishaps per 100,000 flight hours. Our newest aircraft, the F/A-18 HORNET and the SH-60B SEAHAWK, have proven to be much safer than previous aircraft. The F/A-18 mishap rate has been lower than the F-4 and A-7 mishap rates at comparable points in their history. The SH-60B has been mishap free since Navy introduction.

Better pilot retention also contributes substantially to aviation safety. Pilot factors in aviation mishaps have declined in the past several years, reflecting the overall higher experience level which results from an improved retention rate. Naval Safety Center data indicate that the more experienced aircrews have fewer aircrew error mishaps.

Question: Why did the Navy have six mid-air collisions in 1983?

Answer: There were five known mid-air collisions in 1983. Three were associated with advanced air combat maneuvering training, one was in a high density training environment, and one was in a landing pattern. A possible contributing cause factor in one of these mid-air collisions was air traffic controller error; the Navy has embarked on a vigorous program aimed at improving all aspects of air traffic control. A possible sixth mid-air collision was attributed to the loss of two logistics aircraft during an open ocean transit. The Navy continues to stress a disciplined approach to all flight evolutions, and particular emphasis is placed on the avoidance of mid-air collisions. A Near-Mid-Air Collision reporting system has been established to help us identify and eliminate the hazards which contribute to such mishaps.

Question: What are you doing to improve training procedures and air traffic control?

Answer: Air traffic control and training procedures are constantly under review. In 1983 our ATC improvement program included: upgraded basic controller training; personnel management initiatives to upgrade experience of mid-grade air controllers; increased emphasis on supervisory involvement; and more rigorous inspection procedures.

AV-8A

Question: Why is the AV-8A accident rate so high? Is this attributable to your training program?

Answer: The AV-8A/C training program is thoroughly professional and effective; the pilot trained by VMAT-203 is very well prepared. Training is not the problem, rather the AV-8A mishap rate is primarily a function of three factors: pilot/supervisory error, engine reliability and aircraft handling and stability in V/STOL flight. The mishap rate is magnified, of course, by the statistical function of a very small community or sample. The characteristics inherent in the old Harrier design make the machine very capable and extraordinarily versatile, but make the aircraft difficult to master, unforgiving of error, and because it is a single engine jet, vulnerable to major mishap if the engine malfunctions.

To improve the safety of the AV-8A would require a major

redesign of flight control systems, addition of stability augmentation, improved aerodynamics and development of a much improved engine standard. The cost of retrofitting such improvements to airframes nearing the end of their design service life is prohibitive. These features were all incorporated in the AV-8B, and should effect a major improvement in the mishap rate of the modern aircraft.

Question: Should we be prepared for similar high accident rates with the AV-8B, since the trainer is behind?

Answer: No. Fundamental design improvements were successfully incorporated in the new Harrier, the AV-8B. Projections based on analysis of ten years experience operating the AV-8A predict a two thirds reduction in the Harrier accident rate when transition to the AV-8B is complete. To ensure this improvement the Marine Corps will conduct a thorough training program utilizing the most modern, effective methods including advanced simulators and the two seat trainer.

During the early years of conversion, the cadre of trained V/STOL aviators will supply the bulk of the transition force, and as the AV-8B airframe/engine combination is superior to the AV-8A in every respect, that conversion should be smooth. If funding for the AV-8B is sustained in Fiscal Years 1985 and 1986, the inclusion of a larger, broader-based aviator population will undoubtedly proceed with equal success.

SKIPPER/BOOSTED LLLGB

During the FY 1984 House of Representative hearings on defense appropriations, the Navy reported that they planned to award a production contract for boosted LLLGB kits in January 1985. Subsequently, the Navy has decided to request FY 1985 procurement funds for the less desirable SKIPPER kits.

QUESTION: What is the status of the boosted LLLGB development program?

ANSWER: There is no boosted LLLGB development program. Texas Instruments is conducting an in-house IR&D program. To date, trade studies have been conducted in the areas of airfoil group design, rocket motor selection and rocket motor interface.

QUESTION: Please provide a summary of research and development funds authorized for the boosted LLLGB program in past fiscal years. Why were FY 1984 R&D funds withdrawn? What is the extent of research and development funds budgeted for future years?

ANSWER: The FY 1984 RDT&E funds were initially planned to procure and integrate the USAF MK-82 LLLGB on USN/USMC aircraft plus initiating development of a boosted MK-83 LLLGB. Subsequent to these initial plans, the boosted MK-83 LLLGB funding was deleted from the Navy budget due to MK-82/84 development delays. Currently there is no RDT&E budget for boosted LLLGB.

QUESTION: Why is the Navy requesting FY 1985 procurement funds for the less desirable SKIPPER kits when a significantly improved item is under development?

ANSWER: Since the MK-83 boosted LLLGB program has not been developed, SKIPPER represents the only MK-83 LGB which has a low altitude stand-off capability. Therefore SKIPPER procurement is requested.

QUESTION: Please compare SKIPPER and boosted LLLGB in terms of operational effectiveness and delivery method?

ANSWER: The booster LLLGB offers significant improvements in operational effectiveness. As compared to SKIPPER, the boosted LLLGB would have twice the range, three times the launch envelope, one half the CEP, three times the laser acquisition range, significantly improved resistance to electro-optical countermeasures, reduced airfoil/rocket motor stowage volume and expanded carriage capability on Navy attack aircraft.

BUDGET LINE NUMBER 225 SKIPPER

The FY 1983 procurement of 2,400 SKIPPERS has a unit price estimate of \$10,230 based on use of a retrofit of 2,400 LGB PAVEWAY II kits already in inventory. The FY 1985 procurement request for 500 SKIPPER kits has a unit price estimate of \$19,872 and is based on new procurement of 500 LGB PAVEWAY II kits.

QUESTION: After the FY 1983 PAVEWAY II retrofit is accomplished (2,400 units), how many unboosted PAVEWAY II kits will be left in inventory?

ANSWER: Approximately 1200 MK-83 PAVEWAY II kits will be remaining in inventory after the initial SKIPPER retrofit is accomplished.

QUESTION: Production of current funded PAVEWAY II kits is scheduled for completion in April 1985. According to Navy officials, restart of the production line after April 1985 would result in a unit price increase of approximately 35 percent. Since the Navy apparently has a sufficient quantity of unboosted MK-83 kits on hand or due in from prior year procurements, wouldn't it be prudent to retrofit existing kits rather than initiating new procurement?

ANSWER: While retrofitting existing kits is possible to satisfy the FY-85 program, it would not be prudent to do so. Conversion of inventory PAVEWAY II kits does improve the capabilities of those weapons; however there is still a requirement for the unboosted MK-83 PAVEWAY II in low threat environments. At the end of the FY 1985 Funded Delivery Period (FDP), the unboosted MK-83 PAVEWAY II, inventory in conjunction with the SKIPPER inventory, will meet about 32% of its inventory objective.

If 500 PAVEWAY II kits are converted to the SKIPPER configuration, net assets at the end of the FY 1985 FDP will be reduced to 29% of the inventory objective.

QUESTION: What would be the approximate cost of satisfying the FY 1985 SKIPPER request through retrofit of existing PAVEWAY II kits rather than initiating new procurement of additional PAVEWAY II kits?

ANSWER: To convert an additional 500 PAVEWAY II MK-83's to SKIPPER would require approximately \$10,000 per unit vice the \$19,872 unit cost currently FY-85 budget.

GENERAL PURPOSE BOMBS

Question: The Navy's request for fiscal year 1985 procurement authority for the MK-83 bomb and the solid nose plugs are based on unit prices that are different than those

established by the single manager. Please explain why and specify the correct unit price.

Answer: Navy prices reflected are based on information provided by the Single Manager for Conventional Ammunition (SMCA) off PP-2 Pricing Sheets dated 29 September 1983. Subsequent price changes based on Office of the Secretary of Defense-Conventional Ammunition Working Capital Fund budget reviews were received by Navy in mid-February 1984 after submission of the Congressional Budget.

a. MK-83 Bomb

Single Manager for Conventional Ammunition (SMCA) PP-2 Pricing Sheets dated 29 September 1983 stated FY 1985 quantity 9,999 for \$2,284.66 per bomb. However, SMCA prices are updated periodically. For example, PP-2 Pricing Sheets reflected a unit price of \$1,491.10 for the same quantity in January. The latest SMCA list reflects a unit price of \$1,991.00 for FY 1985. Under Joint Conventional Ammunition Program/Single Manager for Conventional Ammunition (JCAP/SMCA) agreements this price could increase by 15% or to \$2,289.65. The Navy's budgeted cost is \$2,214.50 which is within the range of change and consistent with the recent pricing trend.

b. Solid Nose Plug

The 8 February 1984 SMCA PP-2 Pricing Sheets reflect a unit cost of \$25.78 for a quantity of 78,700 nose plugs. This exceeds the Navy's budgeted cost of \$18.26.

Question: In the 1984 House Appropriation Committee Hearings the Navy said that full operational evaluation of the FMU-139 would be completed in August 1983, and the final approval for full production was targeted for January 1984. Was the full operational evaluation of the FMU-139 completed in August 1983? If not, what caused the delay? If so, what caused the final approval for full production of the FMU-139 to slip from January 1984 to an expected date of June 1984?

Answer: Navy Operational Evaluation was completed December 1983. The start of operational testing was delayed until 7 July 1983 due to hardware non-availability. The final Approval for Full Production was not initiated until receipt of the Operational Evaluation Report. The documentation for final approval is in process and is expected to be completed by June 1984.

Question: The Navy is planning to use a portion of the fiscal year 1985 funding to procure from a second source. Has a data package for the second source producer been obtained and validated? If not, when will it?

Answer: The technical data package which is presently being updated will be the basis of a Physical Configuration Audit (PCA) in October 1984 to verify the compatibility of the data package and production fuzes.

Question: Have production facilities been obtained for the second source? If not, who will provide the facilities and when will funds be requested? How much funding will be needed for second source facilities?

Answer: Funds to facilitate a second source producer were deleted during the Army's FY 1985 budget process. A letter has been sent to the Army strongly recommending that the funds to

facilitate a second source be restored. It is estimated that \$10.6 million is needed to facilitate a second source.

Question: Budget backup data shows delivery of the FMU-139 between October 1985 and September 1986; however, the contractor's delivery schedule shows that delivery will not begin until June 1986. Please explain the difference and specify the correct delivery schedule.

Answer: The budget backup data does not reflect the latest planning data. Based upon more realistic administrative and production leadtimes, the FY 1984 procurement will be delivered from July 1985 to February 1986, rather than the October 1984 to September 1985 period reflected in the budget. Consequently, the FY 1985 buy will deliver from March 1986 to February 1987. The Navy does not know what assumptions the contractor has made regarding administrative leadtimes in his estimated delivery schedule.

Question: Is the FMU-139 Master Schedule, which shows deliveries from a second source between June 1986 and January 1987, accurate? If so, why does the production schedule in the budget backup data reflect a different period?

Answer: The FMU-139/B Master Schedule, which shows deliveries from a second source between June 1986 and January 1987, is accurate. The budget backup is in error.

Question: Assuming the Motorola production schedule and the FMU-139 Master Schedule showing second source delivery are accurate, why should the Navy receive funding in fiscal year 1985 for quantities of the FMU-139 to be delivered after the funded delivery period?

Answer: The Master Schedule is accurate. The FY 1985 fuzes to be delivered from June 1986 to May 1987 are within the funded delivery period. The procurement lead times in the P-20 should read Administrative 6 months and Production 12 months. This schedule is designed to provide continuous production.

BUDGET LINE NUMBER 227 LASER GUIDED BOMB KITS

The Navy is requesting about \$37.7 million for 1,353 LLLGB kits. The Navy does not plan operational test and evaluation until February through May 1985 and will not reach a firm production decision to execute the request until about July 1985.

QUESTION: Why is the Navy requesting FY 1985 procurement dollars for LLLGB kits when the production decision is not planned until late FY 1985?

ANSWER: Extensive Air Force development and testing will minimize risks to the Navy testing program. The Air Force is progressing toward a July 1984 Approval for Full Production decision. The Navy FY-85 procurement (assuming an affirmative production decision) will be covered under a relatively easy to implement option to the FY-85 Air Force contract. Suitable information will be available by the second quarter of FY-85 to determine if an FY-85 LLLGB procurement decision is possible. If not, the Navy intends to procure additional PAVEWAY II kits.

The budget back-up data indicated that the Navy would buy 2,259 LGB kits if the LLLGB program is not executed as planned.

QUESTION: Why would the procurement quantity for LGBs increase from 1,353 to 2,259?

ANSWER: The LGB inventory is critically short. Should the LLLGB program delay beyond the FY-85 procurement window, this money will be used to procure LGBs. The quantities are based on the budgeted funds available. The increase is based on buying PAVEWAY II LGBs only if the PAVEWAY III LLLGB is not ready for FY-85 procurement.

QUESTION: What impact would procurement of the LGB kits have on the timely completion of the LLLGB program since the same prime contractor would be involved?

ANSWER: Procurement of LGB kits would have no impact on the timely completion of the LLLGB program, because the contractor uses different facilities for the LGB production and LLLGB development efforts.

QUESTION: Please provide comparative unit cost estimated for LGB and LLLGB kits in FY 1985.

<u>ANSWER:</u>	<u>ITEM</u>	<u>UNIT COST FY-85</u>
	LGB MK-82	\$12,690
	LLLGB MK-82	\$26,350

QUESTION: Please provide tentative delivery schedules for the 1,353 LLLGB kits requested for the Navy and the 3,500 kits requested for the Air Force.

ANSWER: The combined Air Force/Navy FY-85 procurement delivery schedule (based on 3 months administrative lead time, 15 months manufacturing lead time) would be:

<u>CY86</u>												<u>CY87</u>			
<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>				
404	404	404	404	404	404	404	404	404	405	405	405				

QUESTION: Considering the contractor's production capacity, and undelivered items from previous years, can the FY 1985 request be delivered within the normal funded delivery period?

ANSWER: The FY-85 request can be delivered within the normal funded delivery period.

QUESTION: Please compare the LGB and LLLGB in terms of launch range, terminal accuracy, and delivery scenario?

ANSWER: The LLLGB has 40% greater launch range capability, three times the laser acquisition range, four times the terminal accuracy and significantly improved resistance to electro-optical countermeasures than current LGBs. The LLLGB also provides a very low altitude launch mode, offering enhanced aircraft survivability, not available with the LGB. In addition LLLGB retains the current LGB capability of loft and dive deliveries.

ZUNI 5.0" ROCKET

Question: The procurement leadtime, delivery schedule, and unit cost included in the Navy backup data for the MK-71 motor is different than that of the single manager. Explain the difference.

Answer: Navy prices reflected are based on information

provided by the Single Manager for Conventional Ammunition (SMCA) off PP-2 Pricing Sheets dated 29 September 1983. Subsequent price changes based on Office of the Secretary of Defense-Conventional Ammunition Working Capital Fund budget reviews were received by Navy in mid-February 1984 after submission of the Congressional Budget.

The Navy and Single Manager use different criteria in establishing procurement leadtime. Single Manager leadtime is based on the receipt of a funded Military Interdepartmental Purchase Request (MIPR) to receipt of the first component. The Navy's leadtime is based on historic performance from the start of the fiscal year to delivery of the "All Up Round" to the Service from the single manager. FY 1985 Congressional Budget leadtimes are based on actual FY 1982/83 delivery performance. For example, the FY 1982 MIPR was accepted by the SMCA on 4 March 1982 yet first delivery is not forecast until May 1984, a 26 month period. The FY 1983 funded order was accepted by the SMCA on 7 June 1983 with first delivery planned for March 1985, a 21 month period. As a result, the Navy has budgeted using a total 24 month leadtime.

Question: If the single manager's leadtime and delivery schedule is accurate, 4,900 motors will be delivered after the funded delivery period. Therefore, why would the Navy need funding in fiscal year 1985 for that quantity?

Answer: The Navy is not satisfied with SMCA projected leadtimes due to examples of prior year deliveries cited above. Navy and SMCA are negotiating to establish realistic prices and leadtimes based on historical data. The 4,900 motors will deliver during the funded delivery period based upon estimated leadtimes.

Question: If the single manager's production schedule is accurate, can production of the MK-71 motor be increased to provide delivery of the total fiscal year 1985 request within the funded delivery period?

Answer: As stated above, the Navy believes the budgeted quantity will be delivered during the funded delivery period, thus no increase in production rate is necessary.

Question: If the single manager's price is accurate, should not the fiscal year 1985 funding request be reduced to reflect true lower price?

Answer: Over a period of time, SMCA unit costs may fluctuate as shown in the table below:

Unit Cost Variance				
MK-71				Unit Cost
SMCA	PP-2	dated 29 Sep 83	qty 39,900	\$927.33
SMCA	PP-2	dated 11 Jan 84	qty 39,900	\$838.17
SMCA	PP-2	dated 21 Jan 84	qty 39,900	\$837.61
SMCA	PP-2	dated 23 Jan 84	qty 39,900	\$837.61
SMCA	PP-2	dated 24 Feb 84	qty 39,900	\$922.43
SMCA	PP-2	dated 28 Feb 84	qty 39,900	\$922.43

The Navy's budget is based upon a unit price of \$913.53, which is within the range of prices the Single Manager has quoted

over the past six months. Due to the fluctuations in pricing provided by the SMCA, the Navy feels a downward adjustment in funding could jeopardize its ability to procure the budgeted quantity.

2.75" ROCKET

Question: The delivery schedules and unit costs included in the Navy budget backup data for the M-156 warhead and MK-66 motor are different than those provided by the single manager. Explain why and which is correct?

Answer: The Navy MK-156 price reflected in the budget was based upon pricing sheets (PP-2s) supplied by the Single Manager on 29 September 1983. Subsequent pricing sheets reflecting a range in unit prices from \$71.62 to \$111.18 were received by the Navy subsequent to submission of the Congressional Budget. Due to the fact that the MK-156 warhead is a "non-standard item" (insufficient historical data for the Single Manager to quote a firm price) the price may fluctuate by 15% according to inter-service pricing agreements.

In the case of the MK-66 motor, recent price quotes from the Single Manager reflect a price range of \$228.00 to \$233.00 per motor. The Navy has used a price of \$224.47 which is based upon an increase in production quantity from the previous year of 51,200 motors (38,800 to 90,000) and reflects a more realistic cost reduction curve.

With regard to procurement leadtimes, the Navy and Single Manager use different criteria in establishing procurement leadtime. Single Manager for Conventional Ammunition (SMCA) leadtime is based on the receipt of a funded Military Interdepartmental Purchase Request (MIPR) to receipt of the first component. The Navy's leadtime is based on historic performance from the start of the fiscal year to delivery of the "All Up Round" to the Service from the single manager. FY 1985 Congressional Budget leadtimes are based on actual FY 1982/83 delivery performance.

Although Navy budget and most current SMCA PP-2 Pricing Sheets show 12 months production leadtime, backup SMCA delivery schedules indicate a 24 month initial and 15 month reorder leadtime. Navy and SMCA are negotiating to resolve this issue.

Question: If the single manager's delivery schedule is accurate, all quantities of the M-156 and 40,000 MK-66 motors will be delivered after the funded delivery period. Therefore, why should the Navy receive funds in fiscal year 1985 for quantities which will not be delivered during the funded delivery period?

Answer: Navy and SMCA are negotiating the delivery schedule for MK-156 warheads and MK-66 motors to ensure delivery within the funded delivery period.

Question: Assuming the single manager's production schedules are accurate, can production of the MK-156 warheads and MK-66 motors be increased to provide delivery within the funded delivery period?

Answer: The Army's production manager, MICOM, has previously stated a production capacity of 50,000 units per month can be delivered. It should therefore be no problem to

deliver the total Navy requirement within the funded delivery period.

MACHINE GUN AMMUNITION

Question: The Navy shows a 20-month leadtime for 25MM machine gun ammunition; however, the single manager shows only a 15-month leadtime. Why does the Navy use a 5-month longer leadtime than the single manager? How does the single manager's 15-month leadtime affect the delivery of the ammunition within the funded delivery period?

Answer: The single manager's estimate of leadtime only includes the time from receipt of a funded order (MIPR) at the procuring activity to the estimated date of first delivery. The Navy's leadtime figure measures the period from the start of the fiscal year (1 October) to the time of first delivery and is based on historical performance of the single manager. The Navy's budget is based upon the delivery of all requested ammunition within the 12 month funded delivery period. Maximum production capacity is 300,000 rounds per month, therefore there is sufficient capacity to accommodate the FY 1985 procurements within the funded delivery period.

Question: Explain the differences between the following prices shown in the Navy's FY 1985 budget for various 25MM ammunition items and those provided by the single manager. Which prices are correct?

Descrip- tion	Navy unit price	Single Manager unit price	Difference	Quantity	Total Difference
API	\$41.63	\$42.40	\$(0.77)	141,000	\$ (108,570)
HEI	34.85	30.59	4.26	47,000	200,220
TP	19.81	16.13	3.68	886,000	3,260,480
Net cost overstatement					<u>\$3,352,130</u>

Answer: The 25MM TP/HEI ammunition procured by the single manager for the Navy are the same configuration with the following exceptions:

The Army Bushmaster is a linked round. The Navy requires no link/tracer and different packaging and pallets. The Navy's 25MM requires M548 modified containers for packaging and MK 3 steel pallets. Costs for these two components are not currently in the single manager's price. The 25MM API is a unique Navy developed round and has not been previously procured by the single manager. The Navy price includes the M548 modified container and the MK 3 steel pallet. This round is scheduled for transition in FY 1985. The Navy does not know what basis the single manager used to develop the unit cost. The Navy's program manager has requested the single manager to explain the quoted leadtime and pricing since transition will occur in FY 1985.

Question: What is the status of the Navy's effort to reduce the weight of the GAU-12/A gun system to 1,250 pounds--its allowable maximum?

Answer: The Navy's objective to reduce the weight of the GAU-12/A to 1250 pounds will be reached in time for the FY 84 deliveries. In a related effort, there is an ongoing Navy effort to reduce the ammunition cartridge case weight by .31 pounds each (93 pounds per 300 rounds) by replacing the steel cartridge with an aluminum cartridge.

Question: Why does the Navy need ammunition prior to the GAU-12/A gun system meeting the maximum 1,250 pound weight requirement? Is this ammunition being procured too early?

Answer: The Navy's program to reduce the gun weight by less than 1% of its total weight (1250 VS 1261) is a low risk effort. The ammunition procurement program has been phased with the planned delivery of the gun. Initial ammunition deliveries are not related to the operational availability of the gun since these rounds will be used for qualification tests of the gun weapon system.

Question: What is the status of the testing of the HEI round with the lower cost M-505 fuze and when did the Navy first consider using the lower cost fuze?

Answer: NAVAIR initiated this cost reduction program in FY 1983. Three contractors are currently running first article qualification tests. Upon completion of testing, Approval for Full Production will be requested. The Navy expects to complete this program by 1 July 1984.

Question: We note that the Army recently started procurement of 25-mm cartridges for use in the M242 gun (commonly called Bushmaster ammunition). Have the Army and Navy exchanged "lessons learned" in developing their respective versions of 25-mm ammunition? Have programs for establishing production facilities been coordinated?

Answer: The Navy has been represented at single manager production status reviews at contractor facilities at the invitation of the Bradley Fighting Vehicles Program Office. Existing single manager technical data packages are being used in conjunction with Navy's unique requirements (packaging, containers, no trace and link). The Bushmaster has been modified to accommodate these requirements.

PRACTICE BOMBS

Question: The procurement leadtime, delivery schedule, and unit cost included in the Navy budget backup data for the MK-76 practice bomb is different than that of the single manager. Explain why and which are correct.

Answer: The Navy procured MK-76 practice bombs in two configurations (TWIN PACK) and (BULK PACK) through FY 1984. The Budget exhibit shows an average unit cost based on total quantity. Beginning in FY 1985 the Navy will only procure one configuration TWIN PACK. Navy showed a unit cost of \$19.71 in FY 1985 in the Congressional Budget. The Single Manager for Conventional Ammunition (SMCA) PP-2 Pricing Sheets dated 29 September 1983 indicated unit cost of \$20.45 for TWIN PACK MK-76s. Navy feels, based on increase in production quantity, \$19.71 is a more realistic price. Navy is currently negotiating with SMCA on price and delivery.

Question: If the single manager's leadtime and delivery schedule is accurate, a quantity of 99,100 bombs will be delivered after the funded delivery period; therefore, why should the Navy receive funding in fiscal year 1985 for this quantity? Also, if the single manager's unit prices are accurate should the fiscal year 1985 funding request be reduced to reflect the lower prices?

Answer: Navy leadtime shown is 24 months. SMCA PP-2 Pricing Sheets show 12 months leadtime, however, P-21 backup production schedule shows 12 months initial and 9 months reorder. SMCA stated however FY 1985 deliveries will start in June 1986, which is a 21 month leadtime. Historically, leadtimes have ranged from 18-22 months from the time the Single Manager accepts a funded order until first delivery. As stated above, the Navy believes a unit price of \$19.71 per bomb is the most realistic estimate available at this time, therefore adjustment to the Navy's funding is unwarranted.

Question: Assuming the single manager's production schedule is accurate, can production of the MK-76 be increased to accomodate delivery of the total fiscal year 1985 request within the funded delivery period?

Answer: Yes, production could be increased. There are currently two qualified producers (DEL and DELFASCO) which have a maximum capability of 150,000 per month per contractor. However, the Navy believes no increase in production rate will be needed.

Question: The single manager's production schedule shows concurrent delivery of the MK-76 FY 1985 and 1986 buys during July through September 1986. To provide concurrent delivery the contractor would need to produce 90,000 bombs monthly. Does the contractor have the capacity to produce this number of bombs?

Answer: Yes, as noted above, each contractor can produce up to 150,000 units per month.

Question: Please explain why the unit prices used by the Navy and those of the single manager differ for the following items:

- Practice Rockeye
- MK-82/BDU-45 TP
- MK-82/BDU-45 NTP
- MK-83 Inert NTP
- CXU-4 Signal

Answer: The following table provides Navy units costs reflected in the budget and the range of unit prices provided by the Single Manager subsequent to preparation of the budget:

Item	Unit Cost Navy Budget	Unit Cost - Single Manager Pricing Sheets
Practice Rockeye	\$4,605.45	\$4,276.91
MK-82/BDU-45 TP	522.40	518.97 - 533.51
MK-82/BDU-45 NTP	430.00	445.60
MK-83 Inert NTP	1,282.69	1,282.54
CXU-4 Signal	7.34	6.08 - 8.02

In the case of the Practice Rockeye, the Navy believes the Single Manager price will increase based upon a reduced

quantity. The \$4,276.91 figure is lower than the FY 1983 actual price of \$4,593.00, yet the Navy's quantity in FY 1985 goes down. The Navy and the Single Manager are currently negotiating the other unit price estimates based on historical contract experience.

BUDGET LINE NUMBER 241 BIGEYE CHEMICAL WEAPON

QUESTION: What is the delivery schedule for the BIGEYE metal parts included in the Navy's FY 1985 budget submission?

ANSWER: The FY 1985 budget submission provides for the procurement of long lead piece parts only. The budget request does not include completion of the weapon or filling of the bomb bodies. Delivery of the parts will commence in the fourth quarter of FY 1986 and deliveries will continue for approximately seven months.

QUESTION: The metal parts will not be needed until the Army has its LAP facility ready and a source capable of producing QL in sufficient quantity to enable the Army to fill the BIGEYE bombs. When will the Army have its LAP facility ready to fill the bombs, and when will QL become available?

ANSWER: The QL liquid chemical is expected to be available in the fourth quarter of FY 1987 and the LAP facility is expected to be operational in the second quarter of FY-87. The Army will be able to provide more exact dates following QL site selection.

QUESTION: Has there been a fully successful test of an all-up-weapon? Please provide details.

ANSWER: Yes. There were five successful BIGEYE all-up-weapon dissemination tests with simulants in 1980. In 1981, there were ten successful all-up-weapon environment tests with chemical simulants, and four successful all-up-weapon safety tests with chemical simulants. There were four chemical simulant tests in 1983. An additional eighty all-up-weapon tests with chemical simulants are scheduled to be conducted during technical evaluation and operational evaluation (AF IOT&E) in FY 1984 and FY 1985. Additionally, three all-up-weapons with special sample ports are scheduled to be tested in the CRDC Toxic Test Chamber in 1984. Open air test of all-up-weapons using toxic chemicals are not permitted as a result of PL 91-121 and PL 91-441.

QUESTION: If the answer to question 3 is no, why is the Navy requesting funds for the procurement of metal parts?

ANSWER: Not required.

QUESTION: Technical evaluation is scheduled for February/March 1984. The evaluation will include dissemination tests of weapons filled with chemical that will supposedly simulate the lethal VX spray pattern. What will these tests prove since the Navy has not shown that the BIGEYE bomb is reliable?

ANSWER: Already completed testing has functionally demonstrated BIGEYE reliability. Dissemination tests, using chemicals which simulate VX as closely as possible, are designed to determine the expected dissemination pattern of the agent on the ground. Secondary objectives are to investigate delivery tactics for operational employment and to verify weapon ballistics.

QUESTION: Why is technical evaluation being performed before the Navy has demonstrated, in a test chamber, that it has a bomb that functions properly?

ANSWER: The purpose of technical evaluation is to identify technical deficiencies and confirm that the design meets technical specifications and requirements.

QUESTION: Starting temperature is very important in determining whether there is a proper mix which yields an acceptable level of lethal chemical purity. What is the starting temperature range which yields an acceptable VX purity?

ANSWER: The temperature range which yields an acceptable VX purity is -10°F and above.

QUESTION: Has the Navy determined the effort of aircraft vulnerability caused by level/loft delivery of the BIGEYE instead of low level delivery? Provide details of analysis.

ANSWER: Both the Navy and the Air Force have considered the impact of level/loft versus the low level delivery and we believe the option to employ either the level or loft tactic, depending on the threat and combat situation, provides sufficient flexibility to meet our requirements. We use the loft delivery as a normal tactic for many of our aircraft and weapons, and delivery of the BIGEYE in this mode poses no new or additional problems. Aircraft survivability/vulnerability is very scenario dependent, and the effects of various tactics are essentially the same for BIGEYE as they are for any other air delivered munition.

QUESTION: How accurate is the level/loft delivery method as compared to low level delivery.

ANSWER: The ballistic accuracy of the BIGEYE before it disseminates agent is similar to other weapons (9 mils for level deliveries and 14 mils for loft deliveries). BIGEYE is an area weapon. Once the agent is disseminated, it is dispersed by the effects of winds. Therefore, the differences in weapon effectiveness caused by varying the type of delivery are minimal for a given target.

JET ASSISTED TAKE OFF (JATO)

Question: The delivery schedules and unit costs included in the Navy budget backup data for the MK-25 motor are different than those provided by the Single Manager. Explain why. Does the Navy's unit price include the MK-188 igniter? Explain differences in the two estimates.

Answer: Navy prices reflected are based on information provided by the Single Manager on PP-2 Pricing Sheets dated 29 September 1983. Subsequent price changes based on Office of the Secretary of Defense-Conventional Ammunition Working Capital Fund budget review were received by the Navy in mid-February 1984 after submission of the Congressional Budget. The Navy budget shows total unit cost for MK-25 with MK-188 igniter. The FY 1983 unit cost for quantity of 1069 was \$6,327.41. The Navy and Single Manager use different criteria in establishing procurement leadtime. Single Manager for Conventional Ammunition (SMCA) leadtime is based on the receipt of a funded Military Interdepartmental Purchase Request (MIPR) to receipt of the first component. The Navy's leadtime is based on historic performance from the start of the fiscal year

to delivery of the "All Up Round" to the Service from the Single Manager. FY 1985 Congressional Budget leadtimes are based on actual FY 1982/83 MIPR delivery performance.

Question: If the Single Manager's delivery schedule is accurate, a quantity of at least 379 MK-25s will be delivered after the funded delivery period. Therefore, why should the Navy receive funding in fiscal year 1985 for this item? Also, if the Single Manager's price is accurate, should not the fiscal year 1985 funding request be reduced to reflect the lower price?

Answer: The FY 1985 delivery schedule for MK-25 motors is based upon actual FY 1982/83 contract performance, and reflects the Navy's best estimate for future contract performance. The FY 1985 procurement should be delivered over a 12 month funded delivery period beginning in April 1986.

Discussion with the contractor indicates that a production rate of 250 units per month can be produced. Current Single Manager for Conventional Ammunition (SMCA) pricing and delivery schedules forecast a production rate of 244 units per month. SMCA pricing schedules reflect the following price variances:

MK-25 JATO:

Pricing schedule dated 29 Sep 83	quantity 1629	\$7,102.16
Pricing schedule dated 11 Jan 84	1629	\$5,432.24
Pricing schedule dated 21 Jan 84	1629	\$5,423.74
Pricing schedule dated 23 Jan 84	1629	\$5,423.74
Pricing schedule dated 28 Feb 84	1629	\$5,423.74

MK-188 Igniter:

Pricing schedule dated 29 Sep 83	quantity 1629	\$531.23
Pricing schedule dated 11 Jan 84	1629	\$372.50
Pricing schedule dated 21 Jan 84	1629	\$371.91
Pricing schedule dated 23 Jan 84	1629	\$371.91
Pricing schedule dated 28 Feb 84	1629	\$371.91

SMCA published FY 1985 Price List indicates a Non-Standard Price subject to $\pm 15\%$ of:

\$5,423.74 for a quantity of 1629 MK-25 motors.

\$371.91 for a quantity of 1629 MK-188 igniters.

Question: What is the basis for the Navy showing a monthly delivery rate of 136 MK-25s when the single manager's schedule shows a maximum monthly rate of 125?

Answer: The current PP-2 Pricing Sheets with backup P-21 production schedule forecasts Hercules can produce 244 per month, and a maximum of 250 per month. Navy does not know the basis for SMCA's 125 per month maximum production rate.

BUDGET LINE NUMBER 243 GATOR CBU-78/B

QUESTION: Will the 990 Gators included in the FY 1985 budget be limited to level flight delivery only?

ANSWER: No, the OPEVAL report recommended approval for level flight deliveries only based on its demonstrated ability to produce minefields that are predictable in size and density. The FOT&E (Follow-on Test and Evaluation) will incorporate verified

ballistic trajectory information into aircraft weapons system software to allow computed release for loft and dive tactics.

QUESTION: If the answer to question 1 is yes, is level flight delivery the only operational requirement?

ANSWER: Not applicable.

QUESTION: If the answer to question 2 is no, what other delivery method requirements are there?

ANSWER: Dive and Loft.

QUESTION: If the FY 1985 Gator buy is for units which can only be delivered in level flight, and if there is a requirement for another delivery mode, why doesn't the Navy postpone the FY 1985 Gator procurement until it can be used in all required delivery modes?

ANSWER: Not applicable.

QUESTION: The Navy's budget document shows a 21-month reorder leadtime and a 16-month initial leadtime. Why is the reorder leadtime longer than the initial leadtime?

ANSWER: The 16-month initial leadtime is based on a Navy add on to an existing Air Force contract for the anti-tank and anti-personnel mines, the existence of GFM (dispensers and CNU-238 containers), and the small quantity (40 units) which will be loaded at a Navy activity (NWC, China Lake) as a priority program. The 21-month reorder leadtime reflects the time required to procure and load all components at a commercial or Government Owned, Contractor Operated activity on a routine production basis.

QUESTION: If the reorder leadtime is 16-months, 409 units, valued at \$12.1 million will be delivered outside the FDP which would end on January 31, 1987. Please explain.

ANSWER: The lead time for production quantities is 21 months which allows for delivery of all units within the FDP ending 30 June 1987.

5"/54 CALIBER AMMUNITION

QUESTION: The Navy's fiscal year 1981 procurement program provided funding for 10,000 low rate initial production HIFRAG projectiles. What is the current status of the low rate initial production contract for HIFRAG projectiles? When will the projectiles be delivered?

ANSWER: The LRIP encompasses contracts for the following items:

Forward body	complete
Aft body	(NOTE 1)
Rotating band	complete
Retaining ring	(NOTE 2)
Fuze protective cap	(NOTE 3)
Loaded beaker	complete

NOTES:

1. Contractor informally indicated a completion date of June 1984. The SMCA PCO has been requested to provide a formal schedule. Two thousand five hundred ninety-three have been delivered.
2. Contractor is experiencing difficulty in passing

First Article Tests. NAVSEA is coordinating troubleshooting efforts to correct problem.

3. Contractor may have difficulty completing contract due to apparent underbidding. Six hundred forty-two have been delivered. NAVSEA in process of determining from Single Manager status of remaining articles.

Delivery schedule will be established following resolution of above problems.

QUESTION: What have been the primary causes for delays in completion of the low rate initial production contract?

ANSWER: Recent delays have been caused by contractor problems in manufacturing the aft body, the retaining ring, and the fuze protection cap.

QUESTION: Why has the Navy requested HIFRAG funds in fiscal years 1982, 1983, and 1984 and later failed to execute any of the procurements?

ANSWER: The FY-84 budget was the first time 5"/54 projectile costs were based on HIFRAG.

QUESTION: Please provide a comparison of funds requested, funds approved, and funds actually expended for HIFRAG projectiles in fiscal years 1982, 1983, and 1984. Since HIFRAG projectiles apparently were not purchased in any of these years, please explain how the approved funds were used.

ANSWER: No funds were requested, approved or expended for HIFRAG projectiles in FY-82 or 83. It has been recently decided that the FY-84 procurement will be HIFRAG projectiles. Requested 84: \$47M; provided 84: \$48M; expended 84: None.

NOTE: HIFRAG comprises only one line in 5"/54 program.

Total program requests for 5"/54 in FY-84 was \$72.4M.

Total funds available following budget cuts \$48.2M. Funds not expended for HIFRAG are being used to procure conventional 5"/54 ammunition to meet inventory objectives.

QUESTION: What is the basis of the Navy's FY 1985 unit cost estimate of \$981? The single manager for conventional ammunition provided a January 1984 estimate for HIFRAG of \$594 per projectile.

ANSWER: The budget submit was prepared prior to receipt of the SM's January prices. Previous programs did not include the D343 and the price was estimated from other HIFRAG projectile prices. It is noted that the unit cost estimate for the HIFRAG IR decreased by over \$300 between the September and December P-22's from Single Manager. The Single Manager estimates continue to fluctuate in part because of partial refund of previously applied surcharges. Refund was in response to DOD directives.

QUESTION: The MK 73 super propelling charge was developed to increase HIFRAG projectile range. Why doesn't the Navy's FY 1985 procurement request provide for procurement of super charges for the HIFRAG projectiles?

ANSWER: The Navy is buying the "super" charge in the FY 1985 procurement. The budget line should have shown D326 (standard propellant charge) and D300 ("super" charge). They will be procured in a 70/30 mix.

QUESTION: A quantity of 5-inch/54 caliber illuminating projectiles are currently due in from past fiscal year procurement programs. Please identify the undelivered quantities by funding year and provide an expected delivery schedule for the undelivered items.

ANSWER: Six thousand units are scheduled to be delivered by December 1984. The parts for the remaining 10,000 units have been procured. A nearly 2 to 1 increase in cost per round was assessed by the Single Manager, precluding assembly of the remaining rounds. These rounds will be assembled in conjunction with the next scheduled buy.

QUESTION: What is the current status of the low rate initial production contract for illuminating projectiles? Have any of the low rate initial items been accepted?

ANSWER: The LRIP was for the candle only. The candles have been delivered. Technical problems with the assembled projectile have precluded establishing a delivery schedule. Problem has been identified and testing is scheduled to verify solution. Single Manager predicts first delivery of fixed projectiles in December 1984.

QUESTION: The procurement leadtime for 5-inch/54 caliber full propelling charges is 17 months. Therefore, FY 1985 deliveries should start in March 1986 and end in February 1987. The Navy's production schedule included with the FY 1985 Presidential Budget back-up shows deliveries of the requested quantity of 126,600 charges between January 1986 and September 1986. The Army Single Manager's production schedule dated November 28, 1983, shows delivery of a quantity of 95,100 between October 1986 and March 1987. Explain the differences between Army and Navy production schedules?

ANSWER: Data on the P-22A backup shows initial deliveries in September 1986, essentially agreeing with the SM's estimate. The schedule shown on the P-21A backup is in error. Recent procurement experience indicates approximately a 23 month leadtime which is reflected in both the Navy and SM documents.

QUESTION: The request for product improvement for 5-inch/54 caliber rounds increased from \$750,000 in FY 1984 to \$2.3 million in FY 1985. What is the justification for the increase?

ANSWER: The increase funds efforts which were deferred in previous years due to insufficient funding. These include certification of the MK 418 VT and M724 ET fuzes, as well as a product improvement effort to reduce the cost of the HIFRAG projectiles. The 750,000 already in the line will fund work on the M732 fuze as well as several other smaller efforts.

5-INCH GUIDED PROJECTILE

QUESTION: How were the FY 1983 and FY 1984 funds for the 5-inch guided projectile used?

ANSWER: FY 1983 and FY 1984 funds are being used for preproduction efforts including producibility engineering, production planning, tooling and test equipment design and fabrication, parts and assemblies for design change validation and the Technical Data Package (TDP).

QUESTION: When will the 100-unit per month production facility be operational?

ANSWER: The facility will have a 100-units per month capability in the third quarter of FY 1986.

QUESTION: Has the Navy acquired a technical data package suitable for solicitation of a second production source as specified in the FY 1984 Defense Authorization Bill?

ANSWER: The Navy is in the process of acquiring the TDP which will be available early in the first quarter of FY 1986. The Secretary of the Navy will notify Congress that the TDP is available and that it can be used for second sourcing prior to procurement of inventory production rounds in FY 1986.

QUESTION: Why wasn't facilities funding provided from the Army's production base support program?

ANSWER: The 5-inch SAL GP program is a Navy program funded under OPN. Its funding is entirely separate from that of the associated Army COPPERHEAD program.

QUESTION: Is the facilities program for this item coordinated with Army's facilities program for COPPERHEAD?

ANSWER: Yes.

QUESTION: How effective is the 5-inch guided projectile when fired against stationary and moving targets?

ANSWER: Of the 83 rounds fired for test purposes, 81% of the projectiles guided to within the projectiles radius of lethality.

QUESTION: Does the target acquisition accuracy decrease significantly with increases in the speeds of moving targets?

ANSWER: No.

QUESTION: How does abnormal weather (i.e., fog, rain, snow, or darkness) impact on the operational effectiveness of the 5-inch guided projectiles?

ANSWER: The 5-inch SAL GP was successfully tested under a variety of operational conditions, including daytime, nighttime, haze, light rain, smoke and simulated battlefield dust conditions. It was not tested in snow since snow conditions were not available at the time of the tests.

QUESTION: Why is the Navy requesting FY 1985 funds to acquire additional plant equipment to increase the production rate from 100 rounds to the maximum rate of 225 rounds per month?

ANSWER: FY 1985 funds provide principally for the assembly of test articles for the validation of the 100 rounds per month capability. Also included are funds to achieve a 225 rounds per month capability by FY 1987 required for the FY 1987 procurement of 2000 rounds and subsequent full rate deliveries.

QUESTION: Wouldn't it be prudent to defer such funding until plans for a second production source are finalized?

ANSWER: No. Such delay would not assure the ability to deliver required rounds for DD 963, DD 993 and DDG 51 classes of ships.

QUESTION: Based on the production schedule included with the Presidential Budget back-up, 5-inch guided projectiles will be

available for fleet use about mid fiscal year 1988. What laser illuminating systems (ship-based, air-based and land-based) will be available at that time?

ANSWER: The Modular Universal Laser Equipment (MULE) and the Ground Laser Locator Designator (GLLD) are land-based laser illuminators used during the technical and operational evaluations of the 5-inch SAL GP and are both available now. The OV 10 aircraft also was used during the above evaluations. In addition, the A-6 Tram aircraft can be used for laser illumination. The ship-based SEAFIRE system will be available as a prototype in FY 1987 and as production units beginning in FY 1989.

QUESTION: To what extent is the operational effectiveness of this projectile dependent on the availability of SEAFIRE?

ANSWER: The Navy 5-inch GP is not dependent on SEAFIRE for its primary mission of naval gunfire support provided an off-board laser illuminator such as those described above is available. The SEAFIRE system provides direct fire capability from own ship in both surface engagements and naval gunfire support.

QUESTION: Exactly how were the FY 1985 budget estimates for the 5-inch guided projectile developed?

ANSWER: The FY 1985 budget was estimated on the bases of the following:

Procure Material/Parts for Verification Hardware	\$14.9M
Validation of 100 rounds per month capability for prime, subcontractor and vendors	21.8
Manufacturing tools and test equipment (225 rpm increment)	12.9
Production support of 5-inch SAL GP	17.4
Document package	1.2
TOTAL	\$68.2M

QUESTION: What will be the unit cost of each projectile in the FY 1985 program?

ANSWER: The "projectiles" in the FY 1985 program are test articles. They are not assembled at efficient, fixed rates, but rather are used to measure incremental production station performance. They will also be subjected to testing which is extraordinary with respect to production procedures. Such testing is necessary to validate individual production steps. Hence, the cost of these test articles cannot properly be compared to the cost of production rounds in later years.

QUESTION: What is the projected unit cost for each projectile in FY 1986 and FY 1987?

ANSWER: The program average unit cost for FY 1986 is approximately \$200K. This cost reflects initial learning on the line plus the inefficiencies of very low rate fabrication on the rate line. FY 1987 program average unit cost is approximately \$90K. The FY 1986 and FY 1987 budgeted costs are consistent with the Secretary of the Navy's established affordability criteria and will lead to the required average unit cost per round of \$44K (including Government and contractor costs) in FY 1981 constant dollars spread over the projected inventory objective of 15,100 rounds.

76MM AMMUNITION

QUESTION: When will the 76mm Variable Time non-fragmentation (VT non-frag) and 76mm High Explosive Variable Time (HE-VT) cartridges be approved for service use?

ANSWER: Approval is expected in May 1984 for both cartridges.

QUESTION: MK 417 fuzes are required for the 20,000 HE-VT cartridges ordered in FY 1984 and the 14,560 VT non-frag cartridges requested in FY 1985. Please provide a delivery schedule for these MK 417 fuzes.

ANSWER: Delivery schedules for the FY 1984 MK 417 procurement have not been established by SM due to delayed Approval for Production. Expect Approval for Production in May 1984. Schedule will be provided by Single Manager for production delivery following approval.

QUESTION: The Navy's FY 1985 request of \$10.4 million for VT non-frag fuzes is based on a unit price estimate of \$714. The Army Single Manager's unit cost estimate of January 16, 1984, is \$544. Please provide an explanation for the differences in unit cost estimates.

ANSWER: The 16 January 1984 SM cost estimate for the 76mm VTMF was \$544. However, a 26 January SM cost estimate, which was provided verbally to the Navy in December, is \$714.

JVX

Question: The JVX budget request is \$198 million. Could the request be trimmed in such areas as in-house lab support and the production engine manufacturer work without harming the FSD portion of the program?

Answer: The \$198.5M FY-85 budget request represents a "bare bones" program, i.e. without risk cost estimate funds. The FY-85 effort is primarily in the area of detailed design to identify, and to reduce, any remaining risks and to ensure a smooth transition from preliminary design to full scale development (FSD). A reduction in funds for FY-85 would have a direct and harmful effect on the FSD portion of the program, resulting in an inability to meet the schedule for the urgently needed Marine Corps 1991 deliveries.

 QUESTIONS SUBMITTED BY SENATOR ANDREWS

F/A-18 GUARANTEES

I understand the Navy developed stringent contractual reliability and maintainability design requirements for full scale development and production of the F/A-18 Hornet.

These reliability and maintainability design requirements reflected state-of-the-art technology used in the Hornet's development and production.

Some of the guarantees included:

- o Engine replacement time of 21 minutes with a crew of four

- o Radar replacement time of 20 minutes with a crew of two
- o A mean time to repair of 1.78 hours
- o An operational readiness rate of 85%
- o A guarantee on the airframe

This to me represents a good example of a guarantee applied to a weapon system. Not only is the weapon a product of the manufacturer's design, it also involves state-of-the-art technology.

Question: Please inform this subcommittee of the advantages these guarantees had on the reliability and maintainability of the F/A-18.

Answer: The first three of these guarantees apply to maintainability, measured in maintenance manhours required per flight hour. The best measure of these advantages is a comparison of F/A-18 maintainability with that of other fleet aircraft. During the most recent 12-month period for which data has been analyzed, the following results were achieved:

Aircraft	Maintenance Manhours Required Per Flight Hour
F/A-18	26.2
A-7E	45.4
A-6E	51.7
F-4J/S	56.0
F-14A	58.6

The mean time to repair for about 50,000 individual maintenance actions on the F/A-18 is currently running about 2.1 hours. This is within 20% of the Navy goal.

The advantage derived from the operational readiness guarantee is best illustrated by a comparison of reliability, measured in mean flight hours between failures. During the most recent 12-month period for which data has been analyzed, the following results were achieved:

Aircraft	Mean Flight Hours Between Failures
F/A-18	2.1
F-4J/S	.8
A-7E	.7
A-6E	.6
F-14A	.6

The reliability and maintainability guarantees resulted in an aircraft that flies three times longer, without failure, than the Navy's other aircraft. When a failure does occur, repair time is half that for other aircraft. Marine Aircraft Group 11, composed of the first three operational squadrons to receive the F/A-18, achieved a mission capable rate of 85.8% during March 1984. This group has maintained an operational readiness capability consistently greater than 75% for the past nine months. The peacetime goal for all Navy and Marine aircraft is 70%.

The advantages achieved through the establishment of guarantees in reliability, maintainability, and operational readiness are apparent. By setting high goals early in the concept and validation phase of the acquisition process, extraordinary improvements in sustainability were attained.

QUESTION: GAO reports released in 1981 and 1982 cited significant progress with earlier problems with the F/A-18, such as acceleration, range, and takeoff speed. The GAO also mentioned

that unresolved technical problems still remained. Would guarantees contribute to correcting these problems?

ANSWER: The unresolved technical problems mentioned by the GAO are the ALR-67 radar warning receiver and the High Speed Anti-Radiation Missile (HARM) system. These systems are government furnished equipment that had not yet been delivered to the prime contractor for integration into the F/A-18. The McDonnell Douglas Corporation could not be expected to guarantee an integration schedule of a system over which they have no control. Equipments now have been made available by the government, and integration is proceeding.

QUESTION: Would guarantees see that these problems are held to a minimum in the future?

ANSWER: Guarantees involving schedule of integration of yet-to-be-developed government furnished equipment with a contractor furnished airframe would probably be impractical to administer. Performance guarantees have been and are being enforced daily through the vehicle of not-to-exceed pricing.

NAVAL AIR RESERVE MODERNIZATION

It has come to my attention that Secretary Lehman is ordering an acceleration of modern first-line aircraft into the Naval Air Reserve.

Actions that are being taken now or will be taken include:

Delivery late this year of F-14 Tomcat fighters to various fighter squadrons.

Transition of some squadrons to the F/A-18.

A speedup of deliveries of E-2C Hawkeye early warning aircraft to the Navy Air Reserve.

Question: Could you provide this committee with a status report on these plans?

Answer: The following is the current schedule for transition of Naval Air Reserve squadrons to the F-14, F/A-18 and E-2C:

	FY-84	FY-85	FY-86	FY-87	FY-88	FY-89
F-14	-	1	1	-	-	-
F/A-18	1	-	-	1	-	2
E-2C	-	-	-	-	1	-

Secretary Lehman also asked the active-duty Navy to seriously commit themselves to upgrade the Navy's reserve air arm.

Question: How willing is the active Navy for this commitment?

Answer: The Navy takes seriously its commitment to the reserves and is striving in all areas to modernize its forces. The role that the Reserve Carrier Air Wings must play in order for the Navy to execute the maritime strategy vital to our national objectives demands that these reserve forces be configured with modern tactical aircraft.

Question: What is the current status of efforts to upgrade the Reserves?

Answer: Through the process of horizontal integration we

have already initiated several programs to achieve the necessary modernization. The success to date permits us now to accelerate our modernization plans so we will have two Reserve Air Wings fully capable of being mobilized and deploying on any active carrier before the end of the decade. The following actions are being taken:

VF-301 will commence receiving F-14 aircraft in FY-85, followed by VF-302 in FY-86.

VFA-303 has begun operating F/A-18 aircraft this year. A second reserve squadron will transition to the F/A-18 in FY-87.

A second VA squadron will transition to the A-7E in FY-85 vice FY-88.

One reserve VAW squadron, VAW-78, now operates the E-2C. The other squadron, VAW-88, will transition in FY-88.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

FLYAWAY COST BREAKDOWN FOR SELECTED AIRCRAFT

Question: Please provide this Committee with a chart breaking down the recurring flyaway cost of past Navy aircraft, current Navy aircraft, and estimated costs for future Navy aircraft, into the following categories: airframe, engines, and avionics. The years selected for the measurement should be high volume production years. The aircraft to be included in the chart should be the A-4, the A-7, the F-4, the F-14A, the A-6E, the AV-8A, the F/A-18, the F-14D, the AV-8B, and the upgraded A-6E.

Answer: Flyaway cost breakdowns are as follows:

(Then Year \$ in Millions)					
Aircraft	FY	Qty	Airframe	Engines	Avionics
A-4M	70	49	\$ 58.0	\$ 16.6	\$ 6.9
	71	24	23.6	8.4	3.7
	74	44	27.3	5.4	10.0
	77	21	38.2	-	21.4
F-4J	66	152	199.1	50.4	76.0
	67	250	329.8	93.0	115.1
	69	68	109.7	23.3	37.9
	70	34	68.7	13.1	21.1
A-7E	68	150	238.7	45.2	5.1
	69	160	234.1	77.2	10.4
	70	27	50.8	15.2	2.2
	71	30	57.5	12.7	3.1
	72	24	46.7	9.3	3.1
	73	48	100.9	21.4	10.3
	74	30	58.7	18.0	11.0
	75	30	58.7	17.3	16.4
	76	30	65.6	25.4	21.0
	77	6	14.5	5.3	3.5
	77	30	85.0	32.9	17.9
	78	12	46.1	15.6	7.3
	79	12	44.5	17.9	8.2

<u>Aircraft</u>	<u>FY</u>	<u>Qty</u>	<u>Airframe</u>	<u>Engines</u>	<u>Avionics</u>
AV-8A	70	12	35.5	—*	.3*
	71	18	55.5	—*	.8*
	72	30	74.3	—*	.3*
	73	30	72.4	—*	.3*
	74	20	32.3	—*	.1*

*Engines and most avionics were provided as CFE and have never been separately priced.

A-6E	70	12	51.2	5.9	1.7
	71	12	50.2	6.9	12.2
	72	12	51.9	6.5	7.2
	73	21	83.3	11.3	6.7
	74	13	64.7	7.3	9.3
	75	12	51.3	9.8	15.8
	76	11	53.0	5.4	37.6
	77	6	45.5	3.4	15.8
	78	12	71.6	11.9	31.9
	79	12	80.0	17.5	41.3
F-14A	71	26	270.4	49.6	109.1
	72	48	284.3	90.8	179.1
	73	50	214.3	88.8	115.6
	74	50	331.4	90.4	168.3
	75	36	348.5	104.2	92.4
	76	36	277.2	91.1	69.6
	77	9	81.3	21.1	13.3
	77	36	322.1	92.8	81.9
	78	44	431.4	119.1	102.5
	79	36	423.4	111.0	125.4
	80	30	424.8	114.6	85.9
	81	30	478.8	142.2	119.5
	82	30	559.9	163.2	138.3
	83	24	486.5	120.0	95.8
	84	24	477.5	132.0	110.9
	85	24	508.2	137.7	118.7
F/A-18	79	9	312.6	76.8	4.1
	80	25	673.2	110.1	11.3
	81	60	1,082.3	237.9	24.3
	82	63	1,133.0	235.1	25.9
	83	84	1,354.1	296.5	56.4
	84	84	1,321.1	283.9	66.1
	85	84	1,341.4	291.6	83.2
AV-8B	82	12	449.4	38.4	12.7
	83	21	403.9	68.7	23.6
	84	27	398.3	76.9	39.4
	85	32	420.2	87.8	52.1

A-6E Upgrade
F-14D

Information not currently available.
Information not currently available.

AIRCRAFT MODIFICATIONS

QUESTION: In your view, would it be accurate to say that the greatest increase in military capability per dollar invested is currently found in avionics improvements, as compared with airframe or engine improvements?

ANSWER: Yes. Capability improvements within the FY 1985 aircraft modification program for all Navy aircraft reflect 98 percent of the investment in avionics improvements. Airframe and engine improvements account for one percent each.

F-110 ENGINE

QUESTION: Please describe in detail the safety improvements the Navy expects to obtain through procuring the F-110 engine for the F-14D.

ANSWER: The F-14 is powered by the TF30-P-414 engine which is prone to compressor stall when high angle-of-attack is combined with any of the following: sideslip, high altitude/low airspeed, throttle settings below 90% RPM, throttle movements, or jet wash. The inherent susceptibility of the TF-30 to stall has forced operational restrictions in critical areas of the aircraft operating envelope. Desired capabilities which the Navy expects to obtain by procuring the F-110 engine as a replacement for the TF-30 include:

- (1) Stall-free operation throughout the aircraft flight envelope with no engine-related aircraft maneuver restrictions.
- (2) Smooth and reliable afterburner ignition and operation throughout the entire aircraft flight envelope.
- (3) Aircraft acceleration and deceleration throughout the flight envelope without incurring afterburner blow-outs or engine stalls.
- (4) Improved single engine wave off performance during heavy gross weight, hot day flight conditions.
- (5) Improved single engine performance in take-off/catapult launch configuration.

QUESTION: Please describe the contribution the new F-110 engine will make to the F-14D's ability to participate in the "outer air battle."

ANSWER: The F-110 engine's improved specific fuel consumption over a typical "outer air battle" mission and utilization of intermediate power vice afterburner power for catapult launches will increase on-station time and combat fuel package. The 30% increase in thrust available and resulting acceleration and performance improvement will decrease deck-launched-intercept response time and allow the aircrew to control high speed intercept geometry. The aircrew will utilize the increased performance and agility to position the F-14 into acceptable missile launch zones and improve missile firing opportunities.

F-14A/D

Question: Please describe the provision(s) of the Air Force's request for proposal for its engine competition which

put the competitors on notice that the Navy would be making its engine selection on the basis of the Air Force's competition.

Answer: The USAF request for proposals did address Navy production quantity options. Both the General Electric and the Pratt & Whitney proposals included acknowledgment of the RFP line item and provided not-to-exceed (NTE) priced options for the Navy engines.

Question: Did the Navy receive any protests or comments concerning its decision to base its engine selection on the Air Force process?

Answer: The Navy received no formal protests nor substantive comments on its decision to base its engine selection on the Air Force competition. There was certainly full awareness of the Navy's intention to do so, based on wide circulation of the contents of the Secretary of the Navy's Memorandum dated 6 July 1983.

Question: Please describe in detail the Navy's analysis regarding the cost effectiveness of holding a separate engine competition to select the new engine for the F-14D.

Answer: In making an engine selection based upon the Air Force competition, the Navy was able to ensure the engine production costs would be minimized due to economies of scale. Prior to the Secretary announcing this decision, the Naval Air Systems Command cost analysts had compared estimated production costs for both engines using a variety of Air Force selection outcomes. It was clear from their analysis that the government would benefit financially by basing the Navy selection on the Air Force competition.

QUESTION: What savings does the Navy expect to realize from the purchase of the F-110 engine for the F-14D?

ANSWER: Improvements in operability which result in an enhanced F-14 weapon system effectiveness are the real benefits of the F110 engine. Savings in terms of initial procurement cost are not forecast since the production cost of the F110 is comparable to the TF-30. Although exact cost savings cannot be quantified, we expect F110 improvements in reliability and operability will result in life cycle cost savings because of reduced maintenance manhours and spares support. In addition, we expect to realize cost savings as a result of fewer aircraft losses from engine related cause factors.

FY'85 NAVY AIRCRAFT PROCUREMENT

QUESTION: If the Navy were scaled back to thirteen carrier battle groups through the retirement of the USS CORAL SEA and other carriers as the USS LINCOLN and the USS WASHINGTON entered service, what impact would it have on the Navy's aircraft procurement plans and in what fiscal years?

ANSWER: Should our commitments enable scaling back to 13 Carrier Battle Groups (CVBGs) there would be a resultant reduction in Navy aircraft procurement requirements. Approximately 130 aircraft are required to support the stand up of a nominal air wing

(CVW) to support one CVBG. Aircraft will be attained throughout the FYDP by a combined strategy of retrieving aircraft from storage, upgrading and extending the service life of existing aircraft, and procuring new aircraft. Also embedded in the Navy's procurement plan is the modernization of existing forces. The actual reduction in aircraft procurement, and when that reduction would occur, would have to be balanced with the other elements of our strategy - storage retrieval, systems upgrade, service life extension and force modernization - to ensure the most cost effective program.

SUBCOMMITTEE RECESS

Senator STEVENS. Thank you very much. The subcommittee will recess.

[Whereupon, at 11:50 a.m., Tuesday, March 27, the subcommittee was recessed, to reconvene at 9:30 a.m., Wednesday, March 28, 1984.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

THURSDAY, MARCH 29, 1984

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:12 a.m. in room 192, Dirksen Senate Office building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Stennis, Andrews, and Chiles.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE NAVY (SHIPBUILDING AND LOGISTICS)

STATEMENT OF EVERETT PYATT, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY FOR SHIPBUILDING AND LOGISTICS

ACCOMPANIED BY:

REAR ADM. DANIEL L. COOPER, U.S. NAVY, DIRECTOR OF BUDGET AND REPORTS, DEPARTMENT OF THE NAVY

REAR ADM. JAMES K. NUNNELY, U.S. NAVY, DIRECTOR, SHIPS MAINTENANCE AND MODERNIZATION DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

CAPT. S. O. NUNN, U.S. NAVY, SCN APPROPRIATION MANAGER, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

W. RANDOLPH BOYD, HEAD, ACQUISITION PLANNING BRANCH, NAVAL SEA SYSTEMS COMMAND

REVIEW OF NAVY SHIPBUILDING AND OVERHAUL PROGRAMS

BUDGET REQUEST

Senator STEVENS. Thank you very much. I appreciate your cooperation, gentlemen.

We are here today to conduct a review of the Navy's request for shipbuilding and ship overhaul programs in fiscal year 1985. For these two major programs, the Navy is requesting some \$18.7 billion for shipyard industrial work, which represents nearly 20 percent of the budget authority requested for all naval activities in the coming fiscal year. The request is \$3 billion above the fiscal year 1984 appropriated level.

While the fiscal year 1985 budget authority request is large, the outlays from these programs are about \$4.5 billion. Consequently, the out-year impact of this year's program is substantial. Meanwhile, efforts to reduce the budget deficit are imposing more severe spending restraints. This forces us to examine substantial new

starts and increasing production rates that could be difficult to sustain in the outyears.

NAVAL EXPANSION PROGRAM

This shipbuilding budget clearly continues the naval expansion program begun 3 years ago to reach our goal of a 600-ship Navy with 15 carrier battle groups. Our objective today is to review that objective and its funding requirements in the context of the fiscal restraint that we all are aware of.

Secretary Pyatt, Admiral Walters, Admiral Fowler, and Admiral Nunnely, we are pleased to have you here today. Your full statements will be printed in the record. Mr. Secretary, I would be pleased if you would highlight your statement.

I understand both Senator Stennis and Senator Andrews have other commitments, and we do want to get to the questions that they have. Thank you very much.

PRIOR YEAR SHIPBUILDING PROGRAMS

Mr. PYATT. Yes, sir, I would just like to briefly summarize.

First of all, the execution of prior year shipbuilding programs is going very well. The fiscal year 1984 program is under contract except for the FFG and the MSH. The terms of all the shipbuilding contracts are fixed price and fixed price incentive, so we are confident that we will be able to execute these within our plans.

For the shipbuilding portion of the contracts, we are about \$500 million under the President's request of a year ago. Part of that was taken in the budget adjustments during the year and part was not. The contracts for the Government furnished equipment are now coming in. They are also showing some savings.

Overall, the ships are being delivered on time and on budget, and the budget that we have presented continues this path; and we believe that it is a well structured and soundly thought-out program.

Admiral Walters would like to bring a few points out on the DDG-51, which is an important new initiative in the modernization of the Navy.

Senator STEVENS. Thank you very much.

Mr. PYATT. That concludes my statement.

Senator STEVENS. That is a good summary.

Mr. PYATT. Thank you, sir.

[The prepared statement of Mr. Pyatt follows:]

PREPARED STATEMENT OF EVERETT PYATT
Principal Deputy Assistant Secretary of the Navy
Shipbuilding and Logistics

Mr. Chairman and distinguished members of the committee. I am Everett Pyatt, Principal Deputy Assistant Secretary of the Navy (Shipbuilding and Logistics).

It is my pleasure to appear before this committee with Vice Admiral Walters and Vice Admiral Fowler to discuss the Navy Shipbuilding Program, our accomplishments over the last three years, and the President's request for Fiscal Year 1985.

Our goal of a 600-ship Navy by the end of this decade is very near to accomplishment. The size of the fleet has increased from 479 battle force ships in 1981 to 525 by the end of this year and we will have 545 ships by the end of next year. These levels will be achieved with funds already appropriated. As of March 15, there were 115 naval ships under construction or conversion at 18 different U.S. shipyards. Our program for Fiscal Years 1985 and 1986 takes the final steps to achieve the 600-ship Navy. Future appropriations can focus on maintaining and modernizing this Navy.

We have come so far in three years because of the support and foresight shown by this committee in helping us to establish and maintain the President's Naval Recovery Program. With your help, we have significantly expanded our shipbuilding program and we have instituted major management reforms to ensure that we get the most out of every shipbuilding dollar. The private shipbuilding industry has responded to our initiatives in a most positive way and has been of great assistance in getting on with our improved and expanded program.

We have achieved a high degree of program stability, so important in allowing both Navy and the private sector to plan effectively for new awards and for needed investments in modern shipbuilding facilities and technology.

In 1983, only 1 of 21 ships was delivered late, 12 were delivered on time, and 8 were a total of 22 months ahead of schedule. In 1984, we expect 8 of 27 ships to be delivered early, 15 to be on time and 4 to be late. Most of the late ships are associated with the TAGOS contractor.

Thirteen of the 1983 ships were on or under budget and we expect 1984 performance to be better. As the members of this committee well know, real savings have been made by bringing in 1984 shipbuilding contracts under budget. The increased and continuing emphasis on competition has helped us to realize a great deal of our success. Three years ago, only 26% of our ships were competitively awarded. We have increased our competition percentage to over 86 percent and this year, at least 19 of 22 ships will be awarded competitively. We are confident that we will reach and maintain our goal of 95 percent competition for the five-year program and beyond. Of the ships in the five-year plan, we anticipate that only TRIDENT will require a non-competitive award.

Our efforts to reduce costs are illustrated by recent contract awards which came in under the President's Budget Request for Fiscal Year 84. Awards for 3 SSN-688 submarines (two at one yard, one at another) achieved savings of \$108 million, award for one LSD achieved savings of \$65 million, a TRIDENT award was about \$112 million under the President's budget and 3 CG's were awarded at a savings of about \$228 million.

Improved fabrication techniques have been developed which will significantly shorten submarine construction times, but these require earlier arrival of material. We are requesting additional advanced procurement funds beginning in FY 1985 to support this initiative which is expected to reduce construction times from a previous best of 62 months to about 50 months.

We can again report that there are no new construction shipbuilding claims outstanding against the Navy. The reasons for our success in this area are several. Based on analyses conducted after the claims settlement, we have substantially revised contract escalation clauses and other clauses, permitting a more reasonable sharing of risks between the Government and our contractors. We are exercising increased program discipline by defining our requirements more carefully and by controlling changes during construction.

We have allowed more contractor participation in design and have benefitted through the ability to go to fixed price incentive contracts. During the current fiscal year, all shipbuilding contracts awarded have been either fixed price or fixed price incentive with equal sharing of cost savings or cost growth up to ceiling. Under these 50-50 shareline arrangements, contractors are rewarded for under budget performance and penalized by sharing cost growth up to the ceiling and bearing all cost growth over the ceiling.

Necessary contract changes are now addressed quickly and fairly through equitable change contract clauses and procedures. We have also improved the quality and increased the number of on-site personnel performing contract administration, business review and production surveillance functions. This provides early warning of potential problems and time to achieve solutions before cost growth can get out of hand.

Again, I would like to commend the genuine efforts of the private sector to follow our example. Their cooperation has contributed significantly to our success.

Two examples of our overall success are our aircraft carrier and guided missile cruiser programs. The contract for CVN-71, THEODORE ROOSEVELT, was modified to include an incentive clause for delivery of CVN-71 up to 14 months in advance of the contract delivery date. This is expected to result in a net savings to the Government of approximately \$74 million. That ship is now ahead of even that accelerated schedule and has a launch date in October of this year, 17 months ahead of original schedule. The FY 83 multiship contract for CVN-72, ABRAHAM LINCOLN, and CVN-73, GEORGE WASHINGTON is expected to result in savings to the taxpayer of \$750 million, with a total of 44 months acceleration of delivery when compared with the Navy's "traditional" plan, which was originally based on one ship in 1984 and one in 1986. In addition to this planned saving, additional savings have occurred which would allow Navy to fully fund the FY 85 increment of the MISSOURI reactivation.

Bath Iron Works was selected as a second source to compete with Litton for procurement of Aegis cruisers. As I noted before, contracts were signed this past December for the first three cruisers to be competitively awarded -- two to Litton, one to Bath. The saving from the President's Budget Request in this first year of competition was \$228 million.

Recently, the competitive process was initiated to bring on a second source for the production of LCAC craft. I would also like to report that the TAKX program is on or ahead of schedule, with the first ship planned for delivery in July of 1984.

Admiral Fowler and Admiral Walters will provide you with the details of our Fiscal Year 1985 Shipbuilding Program. I would like to touch on some of its highlights.

The FY 85 Navy Budget requests 23 new construction ships, 6 conversions and reactivations. We are now dealing increasingly with force maintenance and modernization rather than force building in our shipbuilding program.

We will achieve our deployable aircraft carrier goal by 1990 with funds already appropriated. Our goal of 100 nuclear attack submarines will be achieved with authorization of the attack submarines in the President's FY 1985 request. The outyear submarines in the SCN plan will permit us to sustain and modernize that 100-ship attack submarine force.

Mine warfare and logistic support ships in the FY 1984 request are required to make up the deficiencies caused by past underfunding of these programs. The amphibious building program is balanced with Marine Corps force levels and lift requirements.

Authorization in FY 1985 of the lead ARLEIGH BURKE class DDG-51 Guided Missile Destroyer will provide us with a ship with major survivability improvements and significantly enhanced warfighting capability - a capability essential for replacement of the aging DDG-2 and DDG-37 class ships. The DDG-51, in combination with three TICONDEROGA class cruisers requested, will add needed combat capability to our Surface Combatant Force by the end of the decade and provide future force mix choices.

The performance of the TICONDEROGA in operations in the Mediterranean the past year, in particular, the battle management capability that she has provided to the Battle Group Commander, speaks eloquently for the capability which that class is adding to the Navy. Similarly, the superlative performance of the battleship NEW JERSEY in the same operation reinforces the need for early reactivation of the IOWA-class battleships. With the help of this Committee, we were able to accelerate reactivation of the IOWA, which will commission on 28 April. IOWA will be available to replace NEW JERSEY, which will then complete an approximately 14-month deployment, a tribute to the ship, her crew, and the Long Beach Shipyard personnel who reactivated her. IOWA recently completed her builder's and INSURV trials and received exceptionally high marks, proving that the private sector can do a superb job in these activations. These vessels, when fitted with modern electronic and weapon systems, are formidable fighting ships - and we can place them in active service at a much lower cost and in a much shorter time than a new construction ship of the same capability.

Sealift programs are fully funded in the FY 85 budget request. We have moved the TACS and TAVB programs into the SCN appropriation and we are continuing to fund acquisition of vessels for the Ready Reserve Force.

Now I would like to recognize that the future of the shipbuilding industry is largely in Navy's hands. Navy shipbuilding accounts for virtually all of the ship construction work currently under contract in U.S. shipyards. Except for some Jones Act construction, we do not expect the merchant marine to order new ships in the United States.

In summary, Navy has executed the shipbuilding programs approved by Congress in a way that promotes innovation, reduces costs, and shortens delivery time. The shipbuilding industry has been very responsive and creative in both technical and managerial manners. Recent years have truly been a renaissance of the naval shipbuilding industry and an era in which all participants can be proud.

SURFACE WARFARE

STATEMENT OF VICE ADM. ROBERT L. WALTERS, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

CONTINUATION OF MAJOR BUILDING PROGRAMS

Senator STEVENS. Admiral Fowler, Admiral Walters.

Admiral WALTERS. I would like to say a few words, Mr. Chairman.

In fiscal year 1985, of course, we continue the major building programs which you have approved in the past year, and these are the continuations of the *Trident* and 688 class submarines, the CG-47 class guided missile cruiser, the carrier service life extension program, as well as several amphibious, logistic support, mine warfare, and sealift programs.

ARLEIGH BURKE CLASS DDG-51

But the major new start this year is the *Arleigh Burke* class guided missile destroyer, DDG-51. Last year you appropriated long lead funding for this ship and this year we are requesting the balance for the lead ship.

I would like to talk a moment about the requirement for this ship. *Arleigh Burke*, DDG-51, is the destroyer of the future. She will replace the DDG-2 and DDG-37 class ships as they reach block obsolescence by the early 1990's. Designed as a general purpose multimission workhorse of the fleet, the DDG-51 brings enhanced survivability and service life margin for 35 years of service to our naval forces. Operating offensively as a unit of surface action groups, amphibious task forces, and carrier battle groups requires a derivation of the Aegis combat system deployed in U.S.S. *Ticonderoga*, CG-47.

For many years, the Navy has carefully studied the requirements for a destroyer which would replace those in service. The evolving Russian threat and fiscal reality require a general purpose, multimission, and battle group capable ship. While capable, she must be affordable in the numbers required to distribute offensive and defensive firepower.

The future destroyer must achieve added target detection capability, fast reaction time, have maximum capacity and greater inherent survivability.

Arleigh Burke's contract design is all but completed. She is tough, fully capable, and survivable. Her multimission capability is centered around a down-sized Aegis combat system similar to that in the CG-47 class cruiser.

Her operating profile will support surface action groups, underway replenishment groups, amphibious task groups, as well as car-

rier battle groups. She is highly capable and will believe affordable in the numbers required.

Because of the approaching block obsolescence of the DDG-2 and DDG-37 classes, the Navy must begin construction of the DDG-51 class in fiscal year 1985 or experience a serious degradation in naval strength and in our ability to maintain a forward strategy.

There is no alternative known to the Navy which can provide the needed capability at equal or less cost. Without this ship, our entire maritime strategy will be jeopardized in years to come. Fiscally, we cannot afford to build or man more cruisers than already planned. Tactically, we cannot afford to build a less capable ship than the DDG-51.

We have squeezed the ship in the design process with affordability in mind, but its warfighting potential is intact. We will continue to exploit every avenue to build the ship as cheaply as possible. Competition among the shipbuilding and defense industry in general is keen and we expect to deliver these ships below our present estimates. I urge your continued support for this program.

Thank you.

Senator STEVENS. Thank you very much.

[The prepared statement of Admiral Walters follows:]

PREPARED STATEMENT OF VICE ADM. ROBERT L. WALTERS, USN
DEPUTY CHIEF OF NAVAL OPERATIONS (SURFACE WARFARE)

Mr. Chairman and distinguished members of the Committee, I am Vice Admiral Robert L. Walters, USN, the Deputy Chief of Naval Operations for Surface Warfare and the Sponsor for the Shipbuilding and Conversion, Navy (SCN) Appropriation.

Today I am privileged to have the opportunity to present to you the Navy's Shipbuilding and Conversion budget request for fiscal year 1985 and to explain our requirements for this year as well as for the remainder of the FY 1985-1989 five year shipbuilding plan.

I am here to discuss ships and warfighting capability. Ships and submarines provide unique capabilities no other service possesses; they are what constitute a Navy; they represent a powerful component of our national military strength; our Navy has been an indispensable element of national strength since this nation's inception. Today, defense treaties link the U.S. to 41 countries, of which only two border the United States. Five of every six countries of the world border the seas. Ninety-five percent of the world's population lives within 600 miles of the 20 fathom curve. The radius of influence of a Carrier Battle Group or Surface Action Group with cruise missile exceeds 1200 NM, and such a force can reposition 700 NM a day. A carrier battle force in dispersed disposition will be contained in an area of about 10,000 square miles and exercise surveillance and destructive power over about 100,000 square miles against enemy forces. Such a force can stay in-theater for weeks or months, or move swiftly to another location on short notice.

Your Navy has been called upon repeatedly to project U.S. influence in distant places - over 180 times since the end of World War II, under eight Presidents. Our economy as well as our national security depends on maritime strength. In short we need a Navy and a Navy is ships and submarines. Winston Churchill summed it up so well during his time when he said "nothing in the world, nothing you may think of, or anyone may tell you; no arguments, however specious; no appeals, however seductive, must lead you to abandon that naval superiority on which the life of our country depends."

The Navy is most conscious of the national concern about our economy, a continued budget deficit and the size of the defense budget. Since I was here last year, we have reduced our five year program by \$17,617,100 and we are continuing to seek further reductions as we commence planning for the FY-86 budget. We are pleased with the savings and efficiencies already realized and we will continue to seek further improvements and cost reductions. Our SCN program continues emphasizing a balance of capability to deter nuclear war as well as conventional conflicts, but we plan our forces to provide the firepower and staying power to win if we must fight.

The past year has been an eventful period for the Navy-Marine Corps team. The Congress once again gave unstinting support to the shipbuilding budget at a time when the operating forces of the Department of the Navy were heavily involved in meeting national commitments around the globe.

The Marine presence off Lebanon and the offshore Navy support of that operation have been headlined by all parts of the news media and continue as a visible demonstration of the mobility, flexibility and staying power inherent in naval forces. We are prepared to fulfill that mission as long as it is required by National Command Authority. Your recent support for the acceleration of the reactivation of the battleship IOWA permits us to ensure an on-station battleship without undue personal sacrifice by crew members.

The joint operations to free the citizens of Grenada from a repressive regime highlight the capability of the Navy-Marine Corps team to execute National Strategy on short notice. With Army and Air Force cooperation, the joint task force executed its mission quickly and effectively. The surgical insertion, rapid

achievement of the objectives and an equally rapid withdrawal are the hallmarks of excellent planning and execution by a force which was properly trained and equipped. It is important to remember that the Marines currently offshore in Beirut are the same troops who participated in the Grenada operations.

Operations were conducted in the Northern Sea of Japan in an attempt to locate the Korean airliner shot down by the Soviet Union. These operations at the edge of Soviet territorial seas required precise coordination by local and theater forces of the Navy and the Air Force both at sea, in Japan, and within the Pacific Command.

Despite these commitments, the Navy continued with its normal peacetime exercise schedule. We participated in national, bilateral and multi-national exercises around the globe. The tempo of operations remains high and the state of training in the Fleet is outstanding. All readiness indicators are improved over the past year and they continue an upward trend. In sum, the Navy today is more ready to execute its assigned missions than in past years.

Over the past three years we have clearly substantiated the requirement for the six hundred ship Navy and are moving toward achieving that goal by the end of 1989. With funds already appropriated we will achieve the required number of deployable aircraft carriers by 1990. We are within reach of our goal of 100 nuclear attack submarines and the increased SSN building program reflected in our five year plan will permit us to achieve and sustain that force level.

The Mine Warfare and Logistic Support Forces, which have been underfunded in the past, are on the road to recovery and the Amphibious building program is on track with Navy-Marine agreement on the requirement and how to best achieve it. The status of Surface Combatants is also improved with the deployment of NEW JERSEY and TICONDEROGA and continued deliveries of Guided Missile Frigates during the past year. The recommissioning in April 1984 of IOWA will give us our second of four battleships.

The appropriation this year of the ARLEIGH BURKE class DDG-51 Guided Missile Destroyer will provide a ship with the required warfighting capability as a replacement for aging DDG-2 and DDG-37 class ships. This in combination with the three TICONDEROGA class cruisers requested this year will add much needed modern capability and firepower to the Fleet by the end of this decade.

In addition, the five year plan fully supports the amphibious, mine counter-measures and logistic support ship programs. At Congressional direction we have moved the TACS and TAVB programs into SCN in addition to the funding of Ready Reserve Force Ships. Congress has already provided funding for the TAKR and TAH conversions in SCN and our expanding Sealift requirements continue to be fully funded in this five year plan. In sum, the FY 1985 budget and the five year shipbuilding plan which accompanies it, contain the ships which we require to execute the national strategy.

Reduced SCN Funding

The most dramatic feature of the five year shipbuilding plan which accompanies the President's FY 1985 budget request is the reduction in outyear SCN funding between last year's plan and this submission. As depicted in viewgraph number 1, during the four common fiscal years, 1985-1988, we have reduced the planned SCN request by over \$17.6 billion dollars. If we were to extend the FY 1988 line of last year's budget using five per cent inflation and no real growth, and compared that with the FY 1989 request of the current submission, another \$7.08 billion has been removed from the SCN requirement, for a total of almost \$25 billion dollars over the full five year period. We are sincere in our effort to achieve more realistic and affordable shipbuilding plans and to achieve a degree of stability which permits the shipbuilders and other industry to exercise intelligent corporate planning leading to reduced cost and improved efficiency. The funding reduction also reflects the application in our estimates of cost savings resulting from increased competition, fixed price contracts and lower rates of inflation.

The result of all of these pricing initiatives is a budget submission which depicts as accurately as possible the fiscal resources required to execute the plan.

Ship Deliveries

In calendar year 1983, the Navy delivered twenty-one ships. This total included 1 AD, 1 AO, 1 DD-963, 10 FFG-7, 1 SSBN, 4 SSN-688, 1 TAK conversion, 1 CV SLEP and the acquisition of the third TAFS from Great Britain. During calendar year 1984 we anticipate delivery of two TRIDENT class Ballistic Missile Submarines, 6 LOS ANGELES SSN-688 class attack submarines, one CG-47 class cruiser, 7 FFG-7s, the lead ship of the LSD-41 class, 1 TARC, 3 TAGOS, 4 TAKR conversions, 1 TACS and the battleship IOWA. This represents 27 new construction and conversion deliveries which is one of the highest totals in many years.

At the same time, the Soviet Navy has also been active. Since my appearance before this committee last year, the Soviet Union has continued to produce surface ships at a sufficient rate to support their steady growth in naval power. This construction is focused on their goal of a balanced fleet capable of carrying out the full range of naval tasks on a global scale. The most notable event in Soviet surface 1983 shipbuilding was the laying down of the first CTOL aircraft carrier designed to handle high performance aircraft. This brings to fruition the ground work we have been observing for several years. They continue to build KIROV nuclear cruisers by starting construction of the third unit. They also launched the third SLAVA class cruiser, another SOVREMENNY and two more UDALOY class guided missile destroyers. These impressive ships have been complemented by the construction of five amphibious craft (LACC), eleven mine warfare ships, twelve principle combatants, eight small combatants and eight auxiliary ships. Of particular concern is the launching by the Soviet Union of nine submarines of five different classes. The size and sophistication of Soviet ships and the diversity in capability invested in numerous new classes, both surface ships and submarines, reflect a strong dedication to their Navy as an instrument of national power far beyond purely defensive needs. Therefore, we must continue to rely upon technology and superior personnel, and our allies to help offset the large Soviet fleet.

With this as background, I will now discuss our FY 1985 shipbuilding request in some detail.

Strategic Submarine Forces

Our SSBN force is composed of thirty-one submarines of the LAFAYETTE, JAMES MADISON and BENJAMIN FRANKLIN classes and four of the TRIDENT class. Ten SSBNs of the oldest classes previously in inventory have either been deactivated or converted to an attack submarine role.

The TRIDENT submarine is a much more capable ship in every aspect than its predecessors and is equipped with 24 missile tubes vice 16. The first eight of the class will carry the highly capable TRIDENT I missile. Commencing with the ninth ship, which was funded in FY 1981, TRIDENT submarines will be equipped with the even more potent D-5 missile, also known as TRIDENT II. Eventually, the first eight TRIDENTS will be backfitted with TRIDENT II. Total SSBN force capability has also been upgraded by the backfit of TRIDENT I missiles on 12 of the POSEIDON submarines.

Our studies indicate that the building rate of one TRIDENT per year is adequate to meet our nation's strategic needs. Our plans are to build one TRIDENT submarine per year; however, it is feasible to build three TRIDENT submarines every two years without impacting planned SSN construction or opening a new nuclear submarine production facility. The ultimate size of the TRIDENT force will be influenced by arms limitations agreements which may be in effect in the future as well as the eventual capability of the other legs of the strategic triad.

The SSBN remains the most secure member of our nuclear deterrent triad and the added capability which TRIDENT brings to that mission makes the sea launched

ballistic missile system a key part of the nation's strategic deterrent for the foreseeable future.

Attack Submarine Forces

Within the six hundred ship Navy, the force level requirement for nuclear attack submarines has been fixed at a minimum of one hundred. This is still a fiscally constrained force level given the growing and increasingly formidable Soviet threat.

To reach and maintain the 100 SSN level, the President's Budget includes twenty SSN-688 class submarines over the five year period and the first of a new design class of attack submarines in FY 1989. We believe that by the late 1980s we will have improved the SSN-688 class to the fullest extent possible and must move toward a ship which will be designed taking full advantage of the latest technology. We still have a qualitative edge in submarine technology but the Soviet Union is cutting into this edge far more rapidly than expected. Their submarine building program is producing large numbers of fast, quiet, deep diving submarines. It will be a challenge to our technical competence to ensure that we retain an adequate qualitative advantage.

Surface Combatant Forces

This category of warships includes frigates, destroyers, guided missile destroyers, guided missile cruisers, and battleships. Over a third of the six hundred ship Navy falls into this category. These ships are designed for a variety of missions which include Anti-Air Warfare, Anti-Submarine Warfare, Anti-Surface Warfare and Strike Warfare.

As we organize our forces for a particular task, surface combatants are required in every type of mission. In Carrier Battle Groups, Surface Action Groups, Amphibious Groups, Underway Replenishment Groups and in Convoy escort, these surface combatants comprise the primary defensive force. With the addition of HARPOON and TOMAHAWK missiles to the surface combatant arsenal, we have moved into an offensive posture which offers on-scene commanders alternative solutions to the traditional strike and anti-surface warfighting methodology.

Surface combatant force requirements are derived from our overall naval strategy and are necessarily somewhat dependent upon carrier and amphibious force levels and the breadth of sea lane defense projected in our national strategy. Since each combatant is an integral and indispensable member of a battle force, we have placed emphasis on total force capability vice numbers of ships in developing a realistically attainable and capable minimum force level objective. Over the past few years, the requirements for surface combatants have remained stable. Support of all projected tasking requires four battleships, thirty-three guided missile cruisers, sixty-seven guided missile destroyers, thirty-seven destroyers and one hundred and one frigates. This is considered our minimum force level objective.

Within this force mix, the most critical element is the pending shortage of guided missile destroyers. The thirty-three ships of the DDG-2 and DDG-37 classes were all delivered in the early 1960s and will reach the end of their thirty year service life in the early 1990s. The only ship class which can address this shortfall in a timely manner with acceptable warfighting capability is the ARLEIGH BURKE DDG-51 class guided missile destroyer. Unless we begin, in FY 1985, to replace the DDG-2 and DDG-37 classes, the surface combatant force will be dangerously short of modern ships to conduct the offensive and defensive missions assigned.

Over the past twenty years, approximately one third of the shipbuilding budget has been allocated to surface combatants. Despite the cost of the high technology capability represented in both the DDG-51 and the CG-47 classes, the average allocated to surface combatants over the five year plan is only thirty-five percent, which sustains the historical precedent.

Amphibious Warfare

Since the five LHA class amphibious ships were appropriated from 1969-1971, the amphibious force was not augmented until the lead LSD-41 was appropriated in Fiscal Year 1981. This ten year hiatus has led to an emerging problem of block obsolescence in the amphibious forces which is now being forcefully addressed with the Navy and Marine Corps in complete agreement as to the lift requirement and how the building program should be structured.

In fiscal 1984, Congress took a major step in support of Marine amphibious lift when it authorized and appropriated funds for the lead ship of the LHD-1 class. Only through the introduction and continued funding of this highly capable modern ship can we achieve our lift goals of a MAF(AE) plus a MAB(AE) by Fiscal Year 1994.

Some armchair strategists believe that amphibious warfare is a thing of the past. To the contrary, the future for amphibious warfare forces has never been brighter. The introduction of the Landing Craft Air Cushion to the Fleet in Fiscal Year 1985 presages an amphibious capability far beyond that envisioned in the campaigns of World War II and Korea. The ability to launch coordinated attacks from many miles at sea rather than coming near shore is a great step forward. The freedom from the requirement to use only the limited number of beaches which have the proper characteristics to support a conventional landing makes enemy defense extremely difficult and provides to the Amphibious Force the elements of surprise, concentration of force, and the ability to utilize that force over a much greater geographic area. Thus the LCAC, combined with helicopter assault, truly modernizes amphibious warfare.

In addition to the new construction programs which are in progress, we are introducing a Service Life Extension Program (SLEP) for the LPD-4 class. These ships are in good material condition and, when "slepped," will provide an essential element of our lift requirement through the 1990s.

Logistic Support Forces

Included in this category are the large multi-product ships (AOE/AOR), ammunition ships (AE), fleet oilers (AO/TAO) and combat stores ships (AFS/TAFS). The concept of operations is simple and straightforward; each carrier battle group will have a multi-product "station ship" operating as an integral part of the battle group. These "station" ships provide endurance to the battle group by carrying fuel, ammunition and stores, and will in turn be replenished by oilers, ammunition ships and combat stores ships operating in escorted Underway Replenishment Groups (URGs). These URGs will operate either from CONUS ports or from an advanced logistic base close to the scene of operations. In the event of loss or other non-availability of the station ship, one AO/TAO and an AE may be assigned to the battle group.

The Congress has appropriated four TAOs over the past three years and has funded the purchase of three valuable combat stores ships from the United Kingdom.

This year we are requesting three additional Fleet Oilers and in the remaining years of the five year plan will be introducing new classes of AOE, AE and the "jumboization" of the AO-177 class. The ammunition ships are required to meet force level objectives and eventually to replace the oldest AEs in current inventory. The five year plan requests three AOE's which will raise our station ship inventory to fourteen (seven AOE/seven AOR). Budgeting for a fourth AOE to match the fifteenth deployable carrier is anticipated in FY 1990.

Mine Countermeasure Forces

For many years the mine warfare forces of the U. S. Navy fell prey to higher priority programs. Not until FY 1982 did we request the first new MCM. Since that time, four more MCM-1 class ships have been appropriated as well as the first of a new class of Coastal Minesweeper Hunter, the MSH-1. As you know, we have

only three active mine sweepers (MSO) and eighteen in the Naval Reserve Force. The capability of these MSOs to ensure port breakout is tenuous at best and we must move rapidly to build the acceptable risk force of fourteen MCM and seventeen MSH. Despite the fact that these are the most sophisticated and capable mine countermeasures ships ever built, this total of 31 ships is a bare minimum and will dictate sequential clearance of U.S. ports and approaches as well as a heavy reliance on our allies to maintain clearance in their own waters.

FY 1985 Shipbuilding Request (VG-2)

The funding requested in FY 1985 permits the Department of the Navy to continue on the path of restructuring the Navy's Battle Forces and Support Forces to ensure that we remain capable of responding to National requirements. We are within sight of the 600 ship Navy which the President has supported. As noted earlier in this statement, we are this year proposing a realistic, affordable and achievable five year plan which represents actual requirements and contains none of the out year enhancement which has previously existed.

Of particular note is the near term stability which this plan represents. The only changes in the FY 1985 request from that of last year is the deletion of one TAO and the addition of one TAGOS. The change of the TACS and TAVB from O&MN/OPN accounts to SCN was done at the direction of the Congress and the shift of TAGS from conversion to new construction was also a Congressional initiative.

I believe that this submission represents a balanced and prioritized acquisition plan which will achieve the goal of 600 ships by the end of 1989 and successfully sustain and more finely balance it in future years.

(VG-3) Even the numbers of ships requested in the plan is stable vis-a-vis last year with 121 new construction vs 124 a year ago and 21 conversions being exactly that previously requested.

This plan is fully supportive of the balanced 600 ship Navy and moves us toward our goals of 15 Carrier Battle Groups, four Battleship Surface Action Groups (SAGs), 100 Nuclear Attack Submarines, Amphibious Lift for a MAF (AE) plus MAB (AE) and the Mine Warfare and Mobile Logistic Support Forces required to support their operations. This year we are requesting funds for the construction of twenty-three ships and the conversion or reactivation of six more.

TRIDENT SSBN (VG-4)

The TRIDENT program continued its successful record throughout the past year. Since I last appeared before this committee, the USS FLORIDA and USS GEORGIA have been delivered to the Navy and the second ship of the class, USS MICHIGAN, has joined USS OHIO on deterrent patrols. Both FLORIDA and GEORGIA will commence their first deterrent patrols during calendar year 1984, and the fifth ship of the class, the HENRY JACKSON, will deliver in the fall. This massive addition of firepower greatly increases the throwweight and survivability of the U.S. nuclear deterrent force.

Congress has now appropriated funds for three D-5 configured TRIDENTS, the FY 1981, 1983 and 1984 ships and the program to shift to the TRIDENT II system is proceeding on schedule.

For construction of the twelfth TRIDENT submarine in FY 1985, we are requesting \$1755.0 million which includes \$265.5 million in advance procurement for future ships.

Nuclear Attack Submarine - SSN-688 Class (VG-5)

The FY 1985 budget requests the authorization and appropriation of four of this highly successful attack submarine. This marks the first year since 1974 that as many as four have been requested. These four will be the forty-fifth through forty-eighth of the class. Of the forty-four previously appropriated by

the Congress, all are under contract with twenty-six already delivered and five more scheduled to deliver during the remainder of calendar year 1984. The FY 1985 ships of this class will contain many improvements over prior years. The VLS capability to launch ship or land attack TOMAHAWK opens to these multi-purpose ships a new dimension of warfare and makes them even more valuable assets. Additionally, added arctic capability, and improved SUBACS further improve their combat capability.

The stabilization of the class at four a year through the five year plan will lead us to improved acquisition efficiency.

This year we are requesting \$2880.0 million for construction of four SSN-688 ships. This includes \$617.8 million in advance procurement for FY 1986 and FY 1987 submarines.

Aircraft Carrier Service Life Extension Program - CV SLEP (VG-6)

Despite the adverse publicity regarding problems with boiler repairs, the initial CV SLEP ship, USS SARATOGA, was an unqualified success. We learned a great deal during the SARATOGA SLEP and those lessons are being fully utilized in the execution of the second SLEP on USS FORRESTAL which is now in progress at the Philadelphia Naval Shipyard. FORRESTAL is now approximately half way through her SLEP and will complete on schedule in May of 1985 and within estimated cost. The planning for the third SLEP ship, USS INDEPENDENCE, has already benefited from experience gained from her two predecessors. I am confident that when she enters the Philadelphia Naval Shipyard in April of 1985 we will be even more certain of successful execution.

The \$764.5 million requested in the FY 1985 President's Budget represents full funding for the INDEPENDENCE SLEP and includes \$181.3 million in long lead funding for the SLEP of USS KITTY HAWK in FY 1987.

Guided Missile Cruiser - TICONDEROGA CG-47 Class (VG-7)

Next to the ARLEIGH BURKE destroyer, the CG-47 Class is our highest priority surface combatant. The FY 1985 budget includes a request for three ships, the fourteenth, fifteenth and sixteenth ships of the class. The first ship of the class, USS TICONDEROGA (CG-47) was authorized and funded in the FY-1978 budget and deployed in October 1983, only nine months after commissioning. She is now in the Eastern Mediterranean with the Navy Task Force supporting U.S. Marines in Lebanon and providing an "air picture" of unprecedented quality. TICONDEROGA has seen action in this volatile region, her 5"/54 guns having taken hostile targets under fire. YORKTOWN, (CG-48), has been launched and was christened 16 April 1983. She will commission in July 1984. CG-49, recently named VINCENNES, was launched 14 January and will be christened in April.

The AEGIS Combat System installed in the CG 47 class Cruiser includes the most sophisticated anti-air warfare system in the world. It is designed to counter the full spectrum of anti-ship cruise missile threats. It provides area air defense in a high density, high threat, anti-ship missile environment. Our continuing assessment of Soviet missile launching capabilities confirms that the CG-47 class is urgently required by the fleet in numbers.

Commander, Task Force 60 in the Eastern Mediterranean is extremely upbeat about the improvement in the quality of air operations since TICONDEROGA's arrival. Alert launches of Combat Air Patrol aircraft have dropped very significantly because of the complete and accurate air picture TICONDEROGA provides, resulting in a 40% aviation fuel saving over previous deployments. CTF-60 has indicated that he and his staff are now able to concentrate on higher level operational problems rather than spending the majority of their time piecing together the air picture. Three major upgrades have been incorporated into the CG-47 class: VLS in CG-52, SQQ-89 ASW system in CG-56, and SPY-1B Radar in CG-59; each provide major capability improvements. These upgrades were approved by the Congress last year in CG-59 and are included in the ships being requested this year, and repre-

sent the configuration for the balance of the class. Another important development in this class is the competition between Ingalls Shipbuilding and Bath Iron Works. We now have two shipbuilders working and expect considerable cost savings to result from healthy competition. Competition will be continued in FY 1985 and through the balance of the class.

USS TICONDEROGA is a quality product and her addition to the fleet has added a new dimension to Battle Group AAW. In addition to her superb AAW capability, she possesses superior capability in ASW and Anti-Surface Warfare. With the advent of TOMAHAWK and Vertical Launchers in CG-52, all follow cruisers will have substantial strike warfare capability. The Navy is now in serial production of this highly capable class of ship and they are well on their way to becoming essential components of our Battle Groups. TICONDEROGA and her sister ships will enhance the Battle Group's ability to fight and survive in hostile environments. The CG-47 class may also be employed with IOWA Class battleships and other surface combatants to form potent Surface Action Groups. This year we are requesting \$3150.0 million for three CG-47 class ships.

ARLEIGH BURKE Class Destroyer (DDG-51) (VG-8)

ARLEIGH BURKE (DDG-51) is a new general purpose, multi-mission destroyer designed to balance required warfighting capability and affordability. The DDG-51 class is our highest priority surface ship program and is urgently needed to rebuild our guided missile destroyer force. Only four guided missile destroyers have been built since the mid 1960's, the DDG-993, 994, 995 and 996 originally designed for Iran and now a part of our fleet. These ships are needed to operate with Amphibious Task Forces, Surface Action Groups, and Underway Replenishment Groups as well as Carrier Battle Groups. The FY 1985 Budget includes a request for the lead ship of the class which will commission in July 1989.

ARLEIGH BURKE's state-of-the-art AEGIS Combat System is heir to the Combat System developed for and successfully employed in USS TICONDEROGA (CG-47). It has been down-sized to meet destroyer requirements, and includes system upgrades in computers, displays, gun control and sonar. ARLEIGH BURKE will further distribute the AAW capabilities of CG-47's and the ASW capabilities of DD-963's. In addition, she continues the introduction of significant surface combatant strike capabilities with her vertically-launched TOMAHAWK Cruise Missiles.

The AEGIS/SPY-1D Phased Array Radar is the core of the AAW Weapon System, providing quantum improvements over older guided missile destroyers in detection, range, reaction time, firepower, availability and area coverage. The radar provides mid-course guidance to vertically-launched STANDARD Surface-to-Air Missiles, and fire control quality data to the 5"/54 gun. The ship's AAW suite is complete with two PHALANX Close-In Weapon Systems to engage short range penetrators and sea skimmers. These elements ensure high firepower and fast reaction time to meet the projected threat in the 1990's and beyond.

The ship's Anti-submarine Warfare system includes two advanced sensors, the AN/SQS-53C hull-mounted sonar and AN/SQR-19 Towed Array Sonar for long range detection and classification. These equipments represent the very best available in active and passive acoustic sensors. The ASW weapons are vertically-launched extended range anti-submarine rockets and torpedoes launched from the two deck mounted MK-32 torpedo tube groups. The flight deck is equipped for LAMPS MK-III helicopters and the LAMPS MK-III shipboard electronics will be installed in the ship.

Strike Warfare capability, including TOMAHAWK and HARPOON Missiles, is a major feature of ARLEIGH BURKE's offensive warfighting ability. These capabilities have never before been designed into a destroyer. Vertically-launched TOMAHAWK Cruise Missiles, programmed onboard, can be fired with great accuracy at long range against both land targets and ships. Further, the ship will carry canister-launched HARPOON Missiles for anti-surface operations. These missiles, with the SEAFIRE Gun Fire Control systems and laser guided projectiles, give DDG-51 a formidable strike capability.

DDG-51's hull is a new design, with survivability and seakeeping greatly improved over any previous destroyer. With a greater beam-to-length ratio than DD-963's, more room is provided within the hull for vital combat system equipment and protected control centers. Steel is used throughout the hull and in all vital superstructure areas, providing fragmentation protection and increased resistance to blast overpressure and fire damage. Electromagnetic pulse protection is designed into major electronics equipment. A Collective Protection System defends all vital areas against chemical, biological and radiological hazards.

The propulsion train is the proven and reliable system installed in the CG-47 class, including a three generator gas turbine drive electrical plant. The Rankine Cycle Energy Recovery (RACER) System, currently under development, will be added to the class when fully developed and tested for operational suitability and cost effectiveness.

The request for this year is \$1173.4 million for the first ship - ARLEIGH BURKE. \$79.0 million in advance procurement for this ship was appropriated by the Congress in FY 1984. ARLEIGH BURKE was approved for detailed design and construction by the Defense System Acquisition Review Council in September 1983. We will complete Contract Design in-house in June 1984 with shipbuilders, weapons system and combat system engineers as members of the design team.

ARLEIGH BURKE will join the fleet in 1989, the first of the most modern and effective destroyers in the world. She will be flexible, hardy, lethal, and fully effective across all mission areas and I cannot overemphasize the importance of getting this class started.

Battleship Reactivation (VG-9)

This year the President's Budget requests full funding for the reactivation of the MISSOURI. In FY 1984 Congress approved \$57.7 million in long lead funding for this ship. The reactivation is scheduled to be accomplished at the Long Beach Naval Shipyard which did such a superb job on USS NEW JERSEY.

As we request full funding for reactivation of the third Battleship, the second, IOWA, is nearing completion of her industrial period at Ingalls Shipbuilding in Pascagoula Mississippi. With the concurrence of the Congress, a reprogramming of funds has permitted acceleration of IOWA which will permit her to relieve USS NEW JERSEY in July. This deployment will be a year earlier than originally planned.

This year we are requesting \$422.6 million for the reactivation of MISSOURI.

The follow on modernization for the battleships has been the subject of much discussion since the inception of the battleship reactivation program. Very early in the program a Phase II was used to indicate a possible major follow-on modernization of the battleships. The alternatives considered involved significant changes to the battleship, including addition of VSTOL, removal of guns and additional missiles. Competent study results indicated these alternatives were expensive and time consuming and reduced the conventional gunfire support capability unique to a battleship. Moreover, the performance of NEW JERSEY, under all four numbered fleet commanders, has clearly demonstrated the value of the battleship in its present configuration. Therefore, Phase II is no longer a part of Navy plans for battleships. Clearly, the battleships will be upgraded as necessary to maintain the capability to perform their mission and respond to the threat environment as it evolves through the expected service life of the battleships. These improvements will be accomplished, as in all Navy ships, as part of the Fleet Modernization Program.

Landing Ship Dock - LSD-41 (VG-10)

In FY 1984 Congress approved the President's request for a five ship, three year multi-year procurement with certain conditions. In lieu of a multi-year contract, the Department of the Navy offered to industry a proposal for one ship in FY 1984 with priced options for additional ships in FY 1985 and FY 1986. The competition for this contract was intense and resulted in large procurement savings.

The two ships requested in FY 1985 represent the fifth and sixth ships of the LSD-41 class. The lead ship, under construction by Lockheed Shipbuilding in Seattle, Washington, is proceeding on schedule and will deliver in November 1984.

The options with Avondale for up to four more ships through FY 1986 combined with those now under construction will give us eight ships of the LSD-41 class. While the five year plan shows construction of a ninth and tenth LSD-41 in FY 1987, we expect to shift to a variant of the LSD-41 in FY 1987 which would have additional cargo lift capability and reduced well deck space. This is the ship represented in the five year plan as the LPDX. If our ongoing studies prove the feasibility of the concept, we will request a change over to the LSD-49 class (variant) in FY 1987 and stop the LSD-41 line at eight ships which is the absolute minimum of that class needed to support Marine lift requirements.

This year we are requesting a total of \$489.5 million for the LSD-41 program which includes \$83.5 million in advance procurement for the FY 1986 ships.

Amphibious Assault Ship - LHD-1 Class (VG-11)

In FY 1984, Congress appropriated full funding for the lead ship of the LHD class. These ships have a large capacity to lift troops and equipment and are the centerpiece of the Department of the Navy plan to expand our Marine Corps lift capability. It is designed to be convertible to sea control and power projection roles if released from its primary amphibious mission.

This year we are requesting long lead funding in the amount of \$39.2 million for the second ship of the class which is planned for FY 1986.

LPD-4 SLEP (VG-12)

The Navy has determined that without a service life extension program for the LPD-4 class, we will be unable to achieve our lift goals through the 1990s. The LPD-4 class is approaching the mid point of the traditional thirty year service life for Navy ships. The LPD-4 class ships are still in good material condition and are excellent candidates for a fifteen year service life extension.

The Navy considers this a prudent and highly effective method to ensure adequate lift for the future at the lowest cost. The first LPD-4 SLEP is planned for the private sector in FY 1987. The SLEP will provide improved survivability and engineering plant modernization as well as self protection systems such as CIWS, SRBOC and SLQ-32 systems. Additionally, the LPD-4 class will receive well deck modifications to operate one LCAC.

This year we are requesting \$15.0 million for long lead material for the LPD-4 service life extension program.

Mine Countermeasures Ship - MCM-1 Class (VG-13)

To date, Congress has appropriated five ships of the MCM-1 class. The lead ship appropriated in FY 1982 is under construction at Peterson Shipbuilding and the FY 1983 ship at Marinette Marine. Contracts for two of the three FY 1984 ships were awarded to Peterson with Marinette receiving an award for the remaining ship. The lead ship is on schedule and will deliver in September 1985. The design problems which surfaced last year have been satisfactorily resolved without impact on end cost. The difficulties we have experienced in integrating the Precise Integrated Navigation System (PINS) are being resolved and PINS will be fully ready when the lead ship delivers. The pressing requirement for delivery of these ships to the Fleet cannot be overstated. This year we are requesting four MCMs, the sixth through the ninth of the fourteen ship class at a total cost of \$349.5 million.

Auxiliary Crane Ship - TACS (VG-14)

The TACS system involves the conversion of selected container ships through the installation of cranes, supplementary crew accommodations and enhanced break-bulk cargo stowage. These ships are designed to provide unloading services to non-self sustaining container ships and other ships alongside. It will also carry unit equipment, heavy break bulk cargo and offload lighterage.

TACS will be maintained in a high degree of readiness in the Ready Reserve Force (RRF). When activated, the ships will be crewed by merchant seamen and operated by the Military Sealift Command.

Congress has previously appropriated funds for two of these conversions in other accounts. The first will deliver this summer. Seven additional conversions are required after FY 1985 and will be funded in the SCN account. Due to the late transfer of these outyear ships to SCN, they are not included in the FY 1986 - FY 1989 programs. This will be rectified during the FY 1986 budget submission.

For FY 1985, we are requesting \$44.0 million for two TACS.

Ocean Surveillance Ship - TAGOS (VG-15)

From 1979 to 1982 the Congress appropriated 12 monohull TAGOS ships. These ships were all awarded to TACOMA Boat Corporation and are under construction at that yard. The six additional TAGOS requested in the five year plan permit the Navy to move closer to our TAGOS requirement of twenty-four. These six will be repeat construction of the first twelve and like those ships will be crewed by civilian contract mariners.

This year the President's budget request is for \$192.9 million for three ships.

Ocean Survey Ship - TAGS (VG-16)

Up until November 1983, Navy was proceeding to refurbish two twenty year old merchant ships currently in the Ready Reserve Force for the TAGS mission. Based on Congressional direction and greatly improved marketplace conditions, we have moved to a new construction option for FY 1985. These ships will be competitively designed and built by industry in the same type of acquisition program being successfully utilized in the MSH program. The estimated cost for these two new ships is only slightly more than that requested for the previously considered conversion alternative. This is due in large measure to our estimate of the intense competition which will exist for these ships from many of the nations shipbuilders.

These new ocean survey ships are urgently required to replace the USNS BOWDITCH and USNS DUTTON which are over forty years of age and have become difficult to maintain.

For the construction of two TAGS, we are requesting \$245.0 million in FY 1985.

Missile Resupply Ship - TAK-FBM (VG-17)

Last year the Congress appropriated advance procurement funding for the conversion of a TAK-FBM in FY 1985. These ships provide the primary logistics link between CONUS and advance FBM sites.

This ship, when delivered in FY 1987, will replace the USMS MARSHFIELD (TAK-282). In concert with the decision to build the Ocean Survey Ships as new construction ships, the Navy also examined the feasibility of a new construction TAK vice the planned conversion. Since the TAK requirement will expire in the late 1990s when we achieve an all TRIDENT force, no justification for new construction could be substantiated and conversion of an existing merchant hull remains the most cost effective method to fulfill the requirement.

This year we are requesting \$91.1 million for full funding of the TAK-FBM ship.

Fleet Oiler - TAO-187 Class (VG-18)

After one ship a year was appropriated in FY 1982 and FY 1983, last year's appropriation was for two TAOs. All design and cost issues have long since been resolved and the TAO construction program is now a well defined mature acquisition effort. The first four of the class are all being built at Avondale. That initial multi-ship option contract ended with the FY 1984 ships. Now that we are moving toward series production of three ships per year we intend to award the three 1985 TAO to one builder with options for up to three more in FY 1986 and FY 1987. We have proven with the FY 1984 LSD-41 program the savings which can be achieved by competition and we believe that we can achieve similar savings with this multi-ship initiative. These ships are urgently required to redress fleet oiler shortfalls and replace our overage oiler force.

This year we are requesting \$562.6 million for the fifth through seventh TAO-187.

Aviation Logistics Support Ship - TAVB (VG-19)

This program will modify two government owned Sea Bridge class (C5-3-78a) ships to enable them to load the vans and equipment of a Marine Aviation Intermediate Maintenance Activity (IMA), and transport them to the desired in theater location. These ships have a combination Roll on/Roll off (RO/RO) and self sustaining container ship configuration which will permit them to self-offload alongside a pier or from offshore.

The FY 1985 President's budget requests \$42.8 million for the first of the two ships. This figure includes \$5.2 million in long lead material for the second ship in FY 1986.

Landing Craft Air Cushion - LCAC (VG-20)

The LCAC is a high speed amphibious craft capable of lifting heavy equipment, weapons systems, cargo and personnel across the beach from amphibious ships at sea well offshore from the assault area. Since LCAC are not restricted by surf or beach conditions, it opens a much larger area of the world's coastline to rapid amphibious assault.

FY 1985 will be the fourth year of LCAC production. To date twelve craft have been appropriated and the first two will deliver by March of next year. As you know, the well decks of the LSD-41 and LHD-1 classes have been sized to optimize LCAC fit and operational envelopes. Based on the latest joint Navy Marine Corps studies, our requirement for LCAC is now 90 craft.

This year Navy is requesting \$230.1 million for nine craft which includes \$31.3 million in advance procurement for future production.

Craft (VG-21)

The FY 1985 request includes \$81.2 million for service craft and \$11.9 million for conventional landing craft. The request includes \$26.4M for six YTBs. This program builds replacements for YTBs constructed during World War II which are still in service. The seven YPs at \$26.1 million represent the fourth year of production for this training craft for the U. S. Naval Academy. The YPs which are replaced will be utilized for officer training at the Surface Warfare Officers School at Coronado California, others will be assigned to Naval Reserve Units around the country to be utilized as training platforms for the mine warfare "Craft of Opportunity" (COOP) program. The three YDs (floating cranes) for \$19.2 million are part of a program required to replace World War II inventory cranes and to provide for new requirements at Holy Loch and Diego Garcia. The YC and YFN requirements are to replace barges built before and during World War II.

The landing craft requested in the FY 1985 budget are designed to provide training for the following Naval Reserve Units:

- 2 LCU - 1 - LCU DET 110, Orange, Texas
- 1 - LCU DET 205, Buffalo, N.Y.
- 3 LCM-8 - 3 - LCM DET 1613 Great Lakes
- 2 LCM-6 - 2 - LCM DET 2605 Cleveland, Ohio

This is part of a continuing Navy program to upgrade equipment utilized by the Naval Reserve units around the country.

Strategic Sealift (VG-22)

The \$31.0 million requested in the FY 1985 President's Budget will fund the purchase from the U.S. Maritime industry of cargo ships and tankers which are no longer commercially viable. These ships will be inducted into the Ready Reserve Force (RRF), a portion of the National Defense Reserve Fleet (NDRF) and will be available to support world wide operations on a short notice basis. No quantity of ships is specified since the purchase price is a dynamic combination of availability, condition of the ship and scrap market values.

Outfitting/Post Delivery

Outfitting material consists of Government Furnished repair parts and other material, including stock fund items and general use consumables required to fill a ship's initial allowance of storeroom and operating space items. This year the request for outfitting is \$204.4 million. Post Delivery funding of \$179.2 million is requested in the FY 1985 budget submission. This funds all work including related design, planning, and procurement of government furnished material (GFM) required for correction of defects or deficiencies identified during trials or the post delivery period. The requirement is based on the number and mix of ship types delivering during the fiscal year.

Potential Cost Growth

In order to ensure that all programs are fully funded throughout the building period, money is requested to cover potential cost growth which may occur in the future. A total of \$187.0 million is requested for this purpose.

Mr. Chairman, that concludes my presentation. I appreciate this opportunity to present the Navy's shipbuilding plan for fiscal year 1985 and I hope that this material will be helpful as you begin your deliberations on the FY 1985 DoD Appropriations Bill. I am aware of the continuing interest and support of this committee for a strong Navy and I respectfully solicit a continuation of that support.

COMPARISON OF SCN IN FY 1984 AND FY 1985 BUDGETS (COMMON YEARS)

FISCAL YEARS

	1985	1986	1987	1988
FY 1984 BUDGET	14,699.0	16,796.6	21,248.2	27,324.8
FY 1985 BUDGET	13,141.9	14,103.9	16,449.2	18,756.5
DELTA	-1,557.1	-2,692.7	-4,799.0	-8,568.3

TOTAL FOR FOUR YEARS: -\$17,617.1 BILLION

VG-2

FY 1985 BUDGET
SHIPBUILDING AND CONVERSION NAVY (SCN)
(\$ IN MILLIONS)

PROGRAM	NUMBER	BUDGET REQUEST
TRIDENT	1	1489.5
TRIDENT A.P.	-	265.5
ATTACK SUBMARINE (SSN-688 CLASS)	4	2262.2
ATTACK SUBMARINE A.P.	-	617.8
CARRIER SLEP (CV SLEP)	1*	583.2
CARRIER SLEP (CV SLEP) A.P.	-	181.3
GUIDED MISSILE CRUISER	3	3125.6
GUIDED MISSILE CRUISER A.P. (MK 45 GUN MOUNT)	-	24.4
BATTLESHIP REACTIVATION (MISSOURI)	1*	422.6
GUIDED MISSILE DESTROYER (ARLEIGH BURKE)	1	1173.4
LANDING SHIP DOCK (LSD-41 CLASS)	2	406.0
LANDING SHIP DOCK A.P.	-	83.5
AMPHIBIOUS ASSAULT SHIP (LHD-1 CLASS) A.P.	-	39.2
LPD-4 SLEP A.P.	-	15.0
MINE COUNTER MEASURES SHIP (MCM-1 CLASS)	4	349.5
MISSILE RESUPPLY SHIP (TAK-FBM)	1*	91.1
FLEET OILER (TAO-187 CLASS)	3	562.6
OCEAN SURVEILLANCE SHIP (TAGOS)	3	192.9
OCEAN SURVEY SHIP (TAGS)	2	245.0
AUXILIARY CRANE SHIP (TACS)	2*	44.0
AVIATION LOGISTICS SUPPORT SHIP (TAVB)	1*	37.6
AVIATION LOGISTICS SUPPORT SHIP A.P.	-	5.2
LANDING CRAFT AIR CUSHION (LCAC)	(9)	198.8
LANDING CRAFT AIR CUSHION (LCAC) A.P.	-	31.3
SERVICE CRAFT	-	81.2
LANDING CRAFT	-	11.9
STRATEGIC SEALIFT	-	31.0
OUTFITTING	-	204.4
POST DELIVERY	-	179.2
POTENTIAL FUTURE GROWTH	-	187.0
TOTAL	29	13,141.9
23 NEW CONSTRUCTION		
* 6 CONVERSIONS		

VG-3

**NAVY FIVE YEAR SCN PLAN
FISCAL YEAR 1985-1989
CONGRESSIONAL SUBMISSION**

	FY-85	FY-86	FY-87	FY-88	FY-89
TRIDENT	1/1755.0	1/1843.3	1/1907.4	1/1993.9	1/2133.1
SSN-688	4/2880.0	4/2873.7	4/2980.6	4/3177.4	4/3404.6
NEW DESIGN SSN	-	-	456.9	200.1	1/1715.1
CV SLEP	1/764.5	128.7	1/740.7	152.0	110.6
CG-47	3/3150.0	3/3251.7	3/3377.8	2/2500.3	2/2644.4
DDG-51	1/1173.4	279.1	3/3058.0	5/4556.0	5/4719.2
BB REACT	1/422.6	90.0	1/462.2	-	-
LSD-41	2/489.5	2/519.0	2/512.4	-	-
LHD-1	39.2	1/1365.5	124.7	1/1450.7	1/1533.5
LPDX	-	-	-	2/824.4	2/872.4
LPD-4 SLEP	15.0	94.1	1/299.6	3/816.3	3/884.5
MCM	4/349.5	4/388.0	1/99.8	-	-
MSH	-	4/234.3	4/214.2	4/240.5	4/234.6
AE	-	1/500.0	1/415.6	1/407.3	1/411.9
AG	-	1/69.4	-	-	-
AO (JUMBO)	-	-	-	1/48.5	2/96.9
AOE	-	1/815.0	-	1/679.4	1/702.7
AR	-	-	-	-	1/531.9
TACS	2/44.0	-	-	-	-
TAGM (CONV)	-	46.9	1/148.7	-	-
TAGOS	3/192.9	3/189.7	-	-	-
TAGS	2/245.0	-	-	-	-
TAK (FBM)	1/91.1	-	-	-	-
TAO	3/562.6	3/577.9	3/653.4	3/666.0	2/468.2
TAVB	1/42.8	1/32.5	-	-	-
LCAAC	(9)230.1	(12)317.1	(12)329.5	(12)308.2	(12)328.9
LANDING CRAFT	11.9	37.9	70.1	73.7	38.8
SERVICE CRAFT	81.2	105.4	130.6	156.3	144.4
STRAT SEALIFT	31.0	31.0	37.0	39.0	38.0
OUTFITTING	204.4	195.9	229.9	331.7	332.7
POST DELIVERY	179.2	117.8	200.1	134.8	254.4
POTEN COST	-	-	-	-	-
GROWTH	187.0	-	-	-	-
TOTAL	13,141.9	14,103.9	16,449.2	18,756.5	21,600.8
SHIP COUNT	23/6	27/2	22/4	24/4	25/5

VG-4

NUCLEAR ATTACK SUBMARINE - SSN 688

Mission:

To destroy enemy ships, primarily submarines, in order to prohibit the employment of such forces in attack and destruction of U.S. and Allied targets.



CHARACTERISTICS

OFFICER	ENLISTED
12	90

LENGTH: 360 FT
 NAV DRAFT: 32 FT
 PROPULSION: Nuclear
 WEAPONS: Torpedoes, HARPOON, TOMAHAWK

CREW: 33 FT
 BEAM: 33 FT
 DISPLACEMENT: 6,900 Tons
 SPEED: 20 + KTS

FUNDING REQUEST	NUMBER	COST *	BUILDERS
FY 1985 PROGRAM	4 SHIPS	\$2,880.0 MILLION * INCLUDES ADVANCE PROCUREMENT	NEWPORT NEWS ELECTRIC BOAT

VG-5

TRIDENT SUBMARINE - SSBN

Mission:

To provide an undersea strategic missile system to ensure that the United States continues to maintain a credible, survivable deterrent, independent of forseeable threats.



CHARACTERISTICS

OFFICER	ENLISTED
15	145

CREW: 42 FT
 BEAM: 42 FT
 DISPLACEMENT (SUBMERGED): 18, 700 Tons
 SPEED: 20+ KTS

LENGTH: 560 FT
 NAV DRAFT: 36 FT
 PROPULSION: Nuclear
 WEAPONS: 24 SLBM Missiles, Torpedoes

FUNDING REQUEST	NUMBER	COST *	BUILDER
FY 1985 PROGRAM:	1 SHIP	\$1755.0 MILLION * INCLUDES ADVANCE PROCUREMENT	ELECTRIC BOAT

VG-6
CARRIER SERVICE
LIFE EXTENSION PROGRAM-CV SLEP

Mission:

To operate aircraft and engage in attacks on targets afloat and ashore.



CHARACTERISTICS (USS INDEPENDENCE)

OFFICER	ENLISTED
143	2690

CREW	129.5 FT
BEAM:	79,300 Tons
DISPLACEMENT:	30 + KTS
SPEED:	

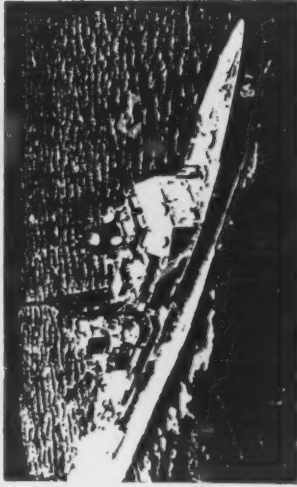
LENGTH:	1,070 FT
NAV DRAFT:	37 FT
CATAPULTS:	4
AIRCRAFT:	1 Carrier Air Wing, 86 POST SLEP

FUNDING REQUEST	NUMBER	COST *	INDUSTRIAL SITE
FY 1985 PROGRAM:	1	\$764.5 MILLION * INCLUDES ADVANCE PROCUREMENT	PHILADELPHIA NAVAL SHIPYARD

VG-7 GUIDED MISSILE CRUISER - CG-47

Mission:

To destroy enemy aircraft, missiles, submarines and surface ships in order to prohibit the employment of such forces against U.S. forces. CG-47 class ships will normally be assigned to carrier battle groups or surface action groups.



CHARACTERISTICS

OFFICER	ENLISTED
33	362

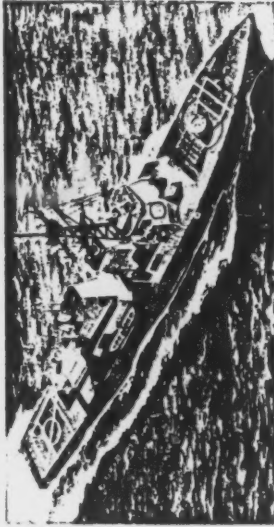
LENGTH:	563 FT	CREW:	55 FT
NAV DRAFT:	31 FT	BEAM:	9,600 Tons
PROPULSION:	Gas Turbine	DISPLACEMENT:	30+KTS
WEAPONS:	AEGIS Combat System, Vertical Launch System SM-2 MR, 2 5"/54 Guns, TOMAHAWK, HARPOON, TORPEDOES, Close in Weapons System (CIWS), LAMPS MK III Helicopter, AN/SLO32 (V3). SROC		

FUNDING REQUEST	NUMBER	COST *	BUILDER
FY 1985 PROGRAM:	3 SHIPS	\$3150.0 MILLION * INCLUDES ADVANCE PROCUREMENT	INGALLS BATH IRON WORKS

VG-8 GUIDED MISSILE DESTROYER - DDG 51

Mission:

To destroy enemy aircraft, missiles, submarines and surface ships. The DDG 51 will be employed as a part of a Carrier Battle Group, Surface Action Group, Underway Replenishment Group or Amphibious Group.



CHARACTERISTICS

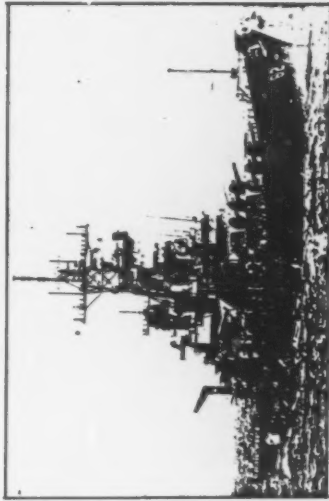
LENGTH:	466 FT	MANNING:	23	ENLISTED	280
NAV DRAFT:	30 FT	BEAM:	59 FT		
PROPULSION:	LM 2500 Gas Turbine	DISPLACEMENT:	< 8300 TONS		
WEAPONS:	AEGIS Weapon System, Vertical Launch System, TOMAHAWK, SM-2 MR, VLA, SEAFIRE/GUIDED PROJECTILE, HARPOON, Torpedoes, (1) 5"/54 gun, SDS/53C SONAR, AN/SOR 19 TACTAS, CIWS (2), SLQ 32 (V) 2/SUPER RBQC, LAMPS MKIII ELECTRONICS	SPEED:	30 + KTS		

FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM:	1	\$1173.4 MILLION	TBD

VG-9 BATTLESHIP REACTIVATION - BB(R)

Mission:

To conduct prompt and sustained combat operations at sea, worldwide, in support of national interests.



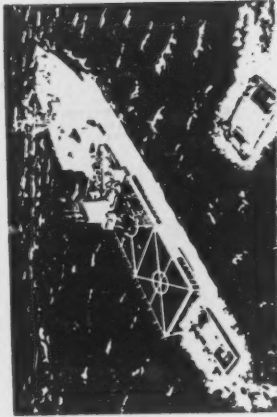
CHARACTERISTICS

LENGTH:	887 FT	CREW:	66	OFFICER	1471
NAV DRAFT:	38 FT	BEAM:	108 FT	ENLISTED	
PROPULSION:	STEAM	DISPLACEMENT:	58,000 TONS		
WEAPONS:	9 16 inch guns, 12 5 inch guns, 32 TOMAHAWK, 16 HARPOON, 4 Close in Weapons Systems (CIWS)	SPEED:	30 + KTS		
FUNDING REQUEST		COST		INDUSTRIAL SITE	
FY 1985 PROGRAM:		NUMBER	1	\$422.6 MILLION	
				LONG BEACH NAVAL SHIP YARD	

VG-10 LANDING SHIP DOCK - LSD-41

Mission:

To transport and launch loaded amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations.



CHARACTERISTICS

OFFICER	ENLISTED
18	337

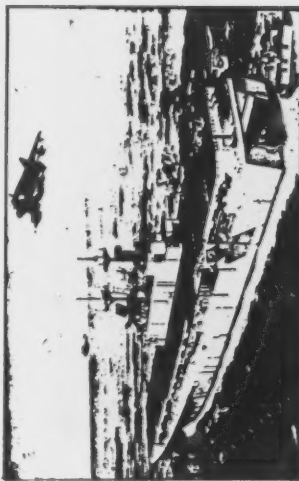
LENGTH:	609 FT	CREW	84
NAV DRAFT:	19.5 FT	BEAM:	504 *
PROPULSION:	DIESEL	TROOP LIFT:	4
SPEED:	20+ KTS	LCAC:	
* 338 Troops plus 102 surge capacity; 64 assault craft unit accommodations.			
FULL LOAD DISPLACEMENT: 15,745 Tons			

FUNDING REQUEST	NUMBER	COST *	BUILDER
FY 1985 PROGRAM:	2 SHIPS	\$489.5 MILLION	AVONDALE
		* INCLUDES ADVANCE PROCUREMENT	

VG-11 AMPHIBIOUS ASSAULT SHIP - LHD 1

Mission:

To embark, deploy and land elements of a major Marine landing force in an assault by helicopters, VSTOL aircraft, landing craft and amphibious vehicles. The LHD class may be converted to operate AV-8s in the attack role.



CHARACTERISTICS				OFFICER	ENLISTED
LENGTH:	844 FT	CREW:	INCLUDES CATF AND STAFF	98	982
NAV DRAFT:	26 FT 8 IN	BEAM:			106 FT
PROPULSION:	STEAM	FULL LOAD DISPLACEMENT:			40,600 Tons
TROOP CAPACITY:	1,873	SPEED:			20+ KTS
HELICOPTER CAPACITY	42 CH-46 equivalents	LCAC:			3
FUNDING REQUEST	NUMBER	COST	BUILDER		
FY 1985 PROGRAM	LONG LEAD	\$39.2 MILLION	INGALLS		

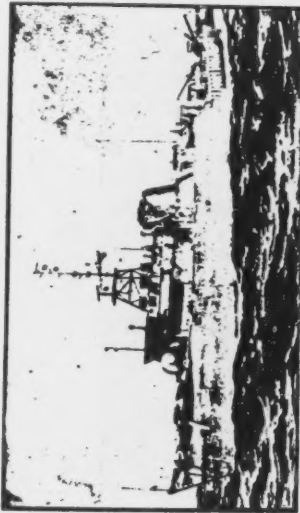
CHARACTERISTICS		OFFICER	ENLISTED
LENGTH:	570 FT	24	373
NAV DRAFT:	23 FT		106 FT
PUSPULSION:	STEAM		16,700 Tons
TROOPS:	930		20 + KTS
			1 *
		* After SLEP	
FUNDING REQUEST		INDUSTRIAL SITE	
FY 1985 PROGRAM:	\$15.0 MILLION (Advance Procurement)	TBD	

VG-13

MINE COUNTERMEASURES SHIP - MCM 1

Mission:

To hunt, neutralize and sweep mines in CONUS waters, choke points and overseas areas.



CHARACTERISTICS

OFFICER	ENLISTED
5	67

CREW:	39 FT
BEAM:	13.5 KTS

Wood/GRP

Precise Integrated Navigation System
(PINS AN/SSN-2)

LENGTH: 224 FT

NAV DRAFT: 11.4 FT

PROPULSION: DIESEL

EQUIPMENT: Mine Hunting Sonar SQO-30, Mine Neutralization System (MNS),
Standard mechanical sweep gear

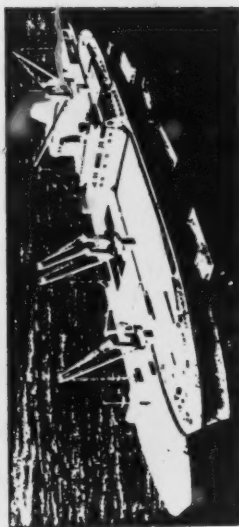
FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM:	4 SHIPS	\$349.5 MILLION	PETERSON MARINETTE MARINE

VG-14

AUXILIARY CRANE SHIP: TACS

Mission:

These ships, with their permanently installed heavy lift cranes, are capable of self-unloading heavy cargo and unloading non-self-sustaining container ships and other ships alongside. The TACS ships will be maintained in a high degree of readiness in an inactive status either in the continental United States or stationed in a forward area. When activated, the ships will be crewed by merchant seamen and will be operated by Military Sealift Command (MSC).



CHARACTERISTICS	
LENGTH:	669 FT
DRAFT:	33 FT
SPEED:	20 KTS
BEAM:	76 FT
PROPULSION:	STEAM
CREW: MSC	
DISPLACEMENT:	
31,500 Tons	
OFFICER	ENLISTED
18	71

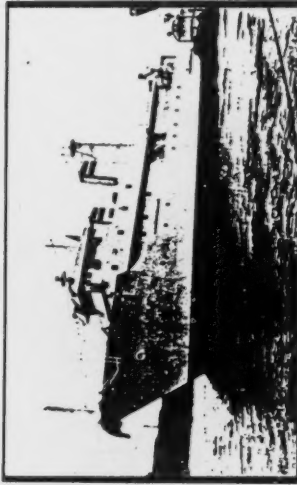
FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM	2	\$ 44.0M	TBD

VG-15

OCEAN SURVEILLANCE SHIP: TAGOS

Mission:

As a unit of the Military Sealift Command, to collect, process, and transmit acoustic data.



CHARACTERISTICS:

OFFICER	ENLISTED	TECHNICIANS
---------	----------	-------------

CREW: 8 11 7
 BEAM: 43 FT
 DISPLACEMENT: 1980 TONS
 SPEED: 11 KTS

LENGTH: 226 FT
 NAV DRAFT: 15 FT
 PROPULSION: DC ELECTRIC MOTOR DRIVE

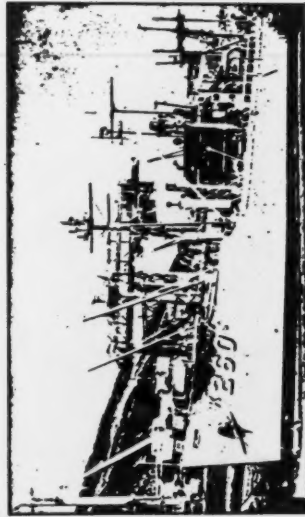
FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM	3 SHIPS	\$192.9 MILLION	TBD

VG-16

MISSILE RESUPPLY SHIP:TAK (FBM)

Mission:

Provides Resupply service to Strategic Submarine tenders at Holy Loch Scotland, Charleston, S.C. and Kings Bay, Ga.



CHARACTERISTICS (Conversion of C3 Hull)

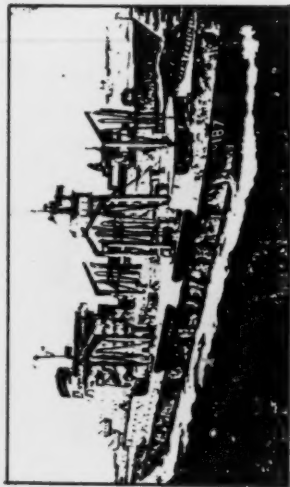
LENGTH:	483 FT	CREW:	57 MSC MARINERS
SPEED:	18 KTS	BEAM:	7 NAVY COMMUNICATORS
PROPULSION:	STEAM	DISPLACEMENT:	68 FT
			15,977 Tons
FUNDING REQUEST	NUMBER	COST	INDUSTRIAL SITE
FY 1985 PROGRAM:	1	\$91.9 MILLION	TBD

VG-17

FLEET OILER TAO 187

Mission:

To provide rapid replenishment of petroleum products to operating forces at sea.



CHARACTERISTICS

95 MSC/21 USN
97.5 FT
180,000 Barrels

CREW:
BEAM:
CAPACITY:

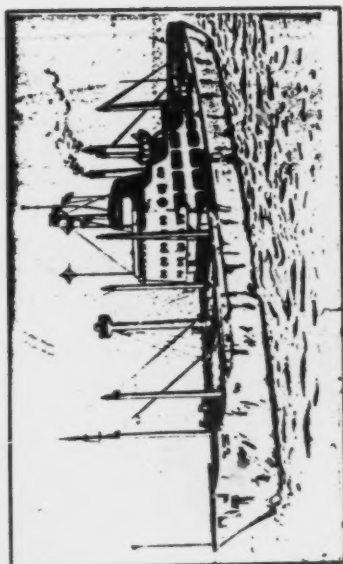
LENGTH: 677.5 FT
NAV DRAFT: 35.0 FT
SPEED: 20 KT Sustained
PROPULSION: Medium Speed Diesel

FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM	3 SHIPS	\$562.6 MILLION	TBD

OCEAN SURVEY SHIP - TAGS

Mission:

Ocean Survey Ships are designed to conduct Ocean Survey in direct support of the Submarine Launched Ballistic Missile (SLBM) Program.



CHARACTERISTICS

These new construction ocean survey ships will be designed by industry to meet Navy requirements. Specifications will allow for innovative design to satisfy the survey mission.

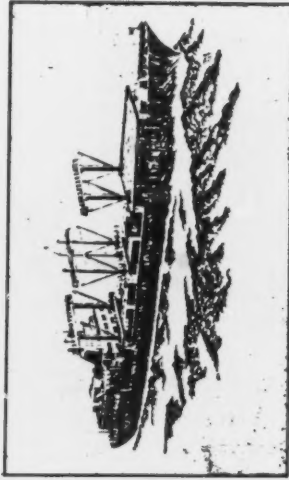
FUNDING REQUEST	NUMBER	COST	BUILDER
FY 1985 PROGRAM:	2	\$245.0 MILLION	TBD

VG-19

AVIATION LOGISTICS SUPPORT SHIP: TAVB

Mission:

To provide dedicated sealift for movement of a functional aviation Intermediate Maintenance Activity (IMA) to support rapid deployment of USMC fixed and rotary wing aircraft.



CHARACTERISTICS

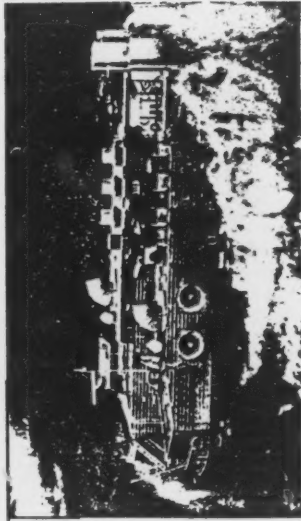
LENGTH:	602 FT	OFFICER	ENLISTED
DRAFT:	29.8 FT	2	39
PROPULSION	STEAM	CREW:	90 FT
SPEED:	20 + KNOTS	BEAM:	DISPLACEMENT:
			23,872 LT

FUNDING REQUEST	NUMBER	COST *	INDUSTRIAL SITE
FY 1985 PROGRAM	1	\$42.8M	TBD
* INCLUDES ADVANCE PROCUREMENT			

VG-20 LANDING CRAFT AIR CUSHION - LCAC

Mission:

The LCAC program has been established to transport weapon systems, equipment, cargo, and personnel of the assault elements of the Marine Air/Ground Task Force from ship to shore and across the beach.



CHARACTERISTICS

LENGTH:	87 FT 11 IN	CREW:	ENLISTED	OPERATOR
BEAM:	47 FT	DESIGN PAYLOAD:	5	ENGINEER
PROPULSION	GAS TURBINE	OVERLOAD PAYLOAD:	60 Tons	NAVIGATOR
CARGO DECK AREA:	1,809 SQ FT	SPEED:	75 Tons	LOAD MASTER
		RANGE:	40 KTS with payload	DECK HAND
			200 NM with payload	ENGINEER
FUNDING REQUEST	NUMBER	COST	BUILDER	
FY 1985 PROGRAM:	9 CRAFT	\$230.1 MILLION	BELL AEROSPACE/TEXTRON	
		INCLUDES ADVANCE PROCUREMENT		

VG-21

CRAFT

PROGRAM	QUANTITY	FUNDING
LCM-8	3	\$ 1.9M
LCM-6	2	\$ 1.3M
LCU	2	\$ 8.7M
YTB	6	\$ 26.4M
YP	7	\$ 26.1M
YD	3	\$ 19.2M
YC	10	\$ 5.0M
YFN	6	\$ 4.5M

VG-22

OTHER SHIPBUILDING

	FY 1985
OUTFITTING	\$204.4M
POST DELIVERY	\$179.2M
STRATEGIC SEALIFT	\$ 31.0M
POTENTIAL COST GROWTH	\$187.0M
NET FUNDING REQUIREMENT	\$601.6 M

NAVAL SEA SYSTEMS COMMAND

STATEMENT OF VICE ADMIRAL EARL B. FOWLER, U.S. NAVY, COMMANDER, NAVAL SEA SYSTEMS COMMAND

PREPARED STATEMENT

Senator STEVENS. Admiral Fowler.

Admiral FOWLER. Mr. Chairman, this is the fourth year that I have appeared before your committee and I am very pleased that this is the third consecutive optimistic report that we have given you.

I can only reiterate the facts that are in the detailed statement and what Mr. Pyatt has given you. So I will conclude by simply saying that I thank you very much for your strong support in the committee and the thoughtful guidance that you have given us, which has contributed in very large measure, I think, to our successes.

[The prepared statement of Admiral Fowler follows:]

PREPARED STATEMENT OF VICE ADM. EARL B. FOWLER, JR., COMMANDER NAVAL SEA SYSTEMS COMMAND

Mr. Chairman and members of the committee: I am Vice Admiral Earl B. Fowler, Commander, Naval Sea Systems Command.

It is a pleasure to appear before you today to discuss the Navy Shipbuilding Program. I have included some charts to make the information presented easier to understand.

NAVY SHIPBUILDING PROGRAM

- Status of Current Navy Shipbuilding Program
 - Major Private Shipyards and Shipbuilding Workload
 - Delivery Assessment
- Capacity and Capability of Private Industry
 - Projected Navy Workload for Private Shipbuilders
 - Supporting Industry
- Status of the Public Shipyards
- Status of Overhaul Improvement Efforts
- Summary

CHART 1

Chart 1 contains an outline of the subjects covered in this statement. First I will cover the status of the Navy's current shipbuilding program and the capacity and capability of private industry to execute the FY 85-89 shipbuilding plan. Then, I will cover the status of public shipyards and discuss the shipyard overhaul improvement effort. Finally, I will summarize.

PRIVATE SHIPYARDS AND NAVY CONSTRUCTION PROGRAMS (15 MARCH 1984)

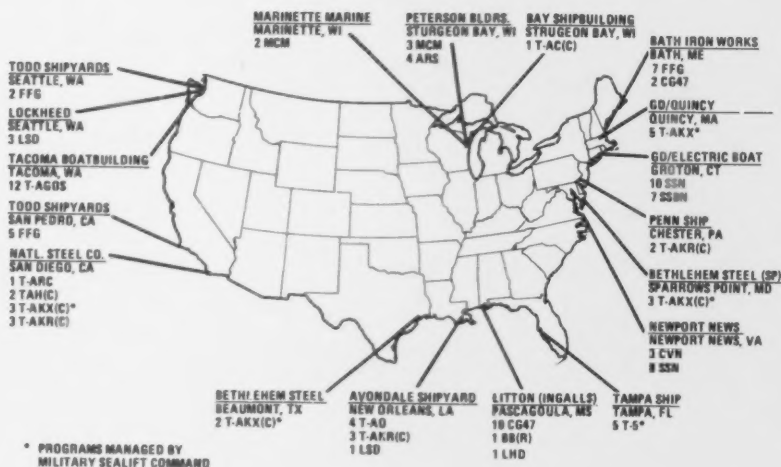


CHART 2

Within the private sector, there are 18 shipyards currently building or converting ships for the U.S. Navy. These shipyards and their Navy order book are shown in Chart 2.

NAVY SHIPS UNDER CONSTRUCTION OR CONVERSION
(15 MARCH 1984)

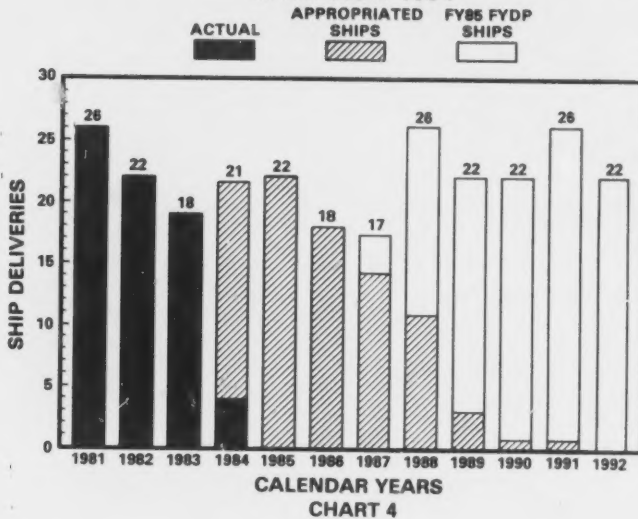
<u>SHIPTYPE</u>	<u>QTY</u>	<u>SHIPYARD</u>
AIRCRAFT CARRIER (CVN)	3	NEWPORT NEWS
GUIDED MISSILE CRUISER (AEGIS) (CG)	12	INGALLS, BATH
AMPHIBIOUS ASSAULT SHIP (LHD)	1	INGALLS
LANDING SHIP DOCK (LSD)	4	LOCKHEED, AVONDALE
GUIDED MISSILE FRIGATE (FFG)	14	BATH, TODD LA & TODD SEATTLE
MINE COUNTERMEASURES (MCM)	5	PETERSON, MARINETTE MARINE
FLEET OILER (T-AO)	4	AVONDALE
TANKER (T-5)	5*	TAMPA SHIP
CABLE REPAIR SHIP (T-ARC)	1	NATIONAL STEEL
SALVAGE SHIP (ARS)	4	PETERSON
OCEAN SURVEILLANCE (T-AGOS)	12	TACOMA BOAT
FLEET BALLISTIC MISSILE SUB- MARINE (OHIO CLASS)	7	ELECTRIC BOAT
ATTACK SUBMARINE (LOS ANGELES CLASS)	18	ELECTRIC BOAT/ NEWPORT NEWS
PRE-POSITIONING SHIP (TAKX)	5*	GENERAL DYNAMICS
PRE-POSITIONING SHIP (TAKX CONV)	8*	BETH STEEL (SP) BETH STEEL BEAUMONT/ NATIONAL STEEL
HOSPITAL SHIP (T-AH CONV)	2	NATIONAL STEEL
CRANE SHIP (T-AC CONV)	1	BAY SHIPBUILDING
FAST LOGISTIC SHIP (T-AKRX CONV)	8	NATIONAL STEEL/ PENN SHIP/AVONDALE
BATTLESHIP (BB REACTVN)	<u>1</u>	INGALLS
TOTAL	115	

*Programs managed by Military Sealift Command

CHART 3

Chart 3 depicts the Navy ships under construction or being converted in the private sector as of 15 March 1984. These include 95 new construction, 19 conversion, and one reactivation. The only FY 84 appropriate ships not awarded at this time are the FFG and Mine Sweeper-Hunter (MSH).

NAVY NEW SHIP CONSTRUCTION DELIVERIES 15 MARCH 1984



The Navy new construction and conversion program in general is doing well. The Navy's business relationships with the shipbuilders are better than they have been in years. There continues to be no new construction shipbuilding claims outstanding against the Navy. Delivery dates are current and costs are within budget. In 1983, 21 new construction or conversion ships were delivered, 8 early, 12 on time, and 1 late. In 1984, 27 ships are estimated to deliver, 15 on time, 8 early, and 4 late. Chart 4 shows the new construction ships only in graphic form and does not include the conversions and reactivations in the shipbuilding program.

Newport News Shipbuilding has made impressive progress on the aircraft carrier THEODORE ROOSEVELT (CVN 71). The ship is now estimated to deliver at least 14 months ahead of its contract delivery date.

Shipbuilding program cost performance in recent years has been good. Thirteen of the ships delivered in 1983 were on or under their original appropriated budget. The majority of ships delivering in 1984 are also expected to be within their original budget as are most of the ships we currently have under contract. The overall shipbuilding program is within budget. The FFG program at Bath Iron Works is an example of exceptional performance in this area. With early deliveries and under target cost performance, we have saved more than 100 million dollars on their first 15 follow ships of the Perry Class Guided Missile Frigates. These are real savings because the price of each of these ships was arrived at by competition among three good yards.

DELIVERY ASSESSMENT

15 MARCH 1984 VS 1 JUNE 1983

QTY	SHIP CLASS	EARLIER	LATER	NO CHANGE
3	AIRCRAFT CARRIER (CVN)	3		
12	GUIDED MISSILE CRUISER (AEGIS) (CG)	3		9
1	AMPHIBIOUS ASSAULT SHIP (LHD)			1
4	LANDING SHIP DOCK (LSD)			4
14	GUIDED MISSILE FRIGATE (FFG)		4	10
5	MINE COUNTERMEASURES (MCM)			5
4	FLEET OILER (T-AO)			4
1	CABLE REPAIR SHIP (T-ARC)		1	
4	SALVAGE SHIP (ARS)		1	3
12	OCEAN SURVEILLANCE (T-AGOS)		12	
7	FLEET BALLISTIC MISSILE SUBMARINE (OHIO CLASS)			7
18	ATTACK SUBMARINE	2	2	14
—	(LOS ANGELES CLASS)			
85	TOTAL	8	20	57

CHART 5

Chart 5 shows the Naval Sea Systems Command managed ships under construction in private yards and their current, Navy estimated delivery status as compared to the estimated delivery dates when I appeared before you on the subject of shipbuilding last June. These are not comparisons to contract delivery dates as my prior statements were. A total of 8 ships are estimated to be delivered earlier, 20 are later, and 57 estimated ship delivery dates are unchanged from our projections of last year or are new ship awards. The reasons for the later estimates are summarized below:

- FFG - Approximately 2- to 3-month delay on 2 ships due to the strike at Todd Seattle. A 1-month delay on another ship to incorporate Government initiated changes during construction to improve the ship's capability. Delivery on a fourth ship was delayed 2 months as a result of internal rescheduling by the shipyard after reviewing the Government's ability to accelerate Government Furnished Equipment deliveries. All four of these ships will be delivered on or before their contract delivery dates.
- TARC - A 2-month delay due to shipbuilder problems encountered during sea trials.
- ARS - A 4-month delay due to the shipbuilder now estimating inability to complete the ship prior to the closing of the St. Lawrence Seaway for the winter. The ship will meet the contract delivery date of February 1985 vice the goal of October 1984.
- TAGOS - Twelve ships delayed principally due to a 17-week strike.
- SSN - About 3 months delay on two ships due to outfitting and testing problems.

CAPACITY AND CAPABILITY OF PRIVATE INDUSTRY

The Navy's proposed five-year ship construction program includes 121 new construction ships and 21 ships to be converted or reactivated in FY 85 through FY 89. The capacity and capability of the industry is adequate to execute the Navy's five year ship construction program. This budget request does not include a request for additional escalation funds for prior year programs. This is due to the low rates of inflation experienced during FY 83. This is also the first time since FY 81 that the Navy has not requested funds for cost growth in prior years' programs. This is due to better contractor performance, favorable contract awards as a result of competition, and an overall improvement in the management of the shipbuilding program.

NAVY SHIP CONSTRUCTION, REPAIR, AND OVERHAUL WORKLOAD FORECAST
PRIVATE SECTOR (1/84)

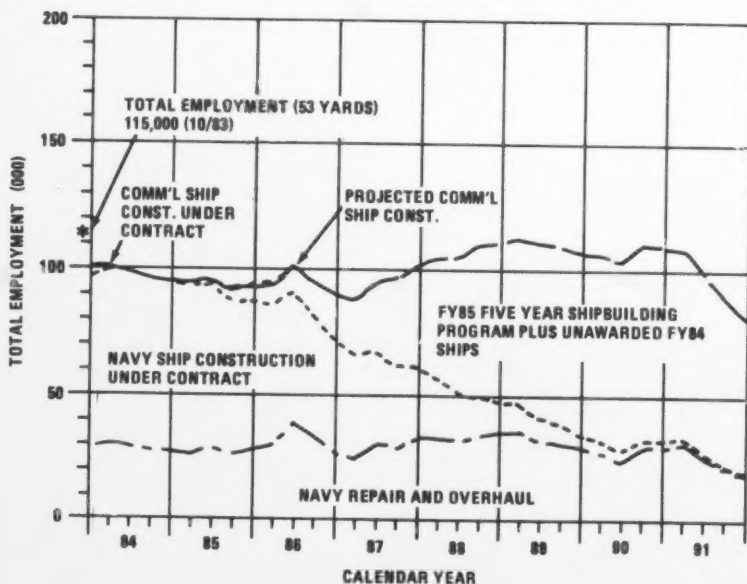


CHART 6

PROJECTED NAVY WORKLOAD FOR PRIVATE SHIPBUILDERS

For the past 3 years, I have forecast a declining shipbuilding industry. During FY 83, a total of 53 private shipyards performed work on Navy ship construction, repair, and overhaul. As of October 1983, the total employment in these 53 yards was 115,000. This represents about a 6,500 man reduction from October 1982. Of these 115,000 employees, 30,000 were applied to Navy ship repair and overhaul, 65,000 to Navy ship construction, 5,000 for commercial ship construction, with the balance of 15,000 being applied to commercial repair and other industrial or nonship work. Ten of these 53 shipyards were involved in only Navy ship construction, 35 in Navy ship overhaul and repair, and 8 in both Navy ship construction and overhaul and repair. Chart 6 depicts the Navy's forecast of employment in these 53 private sector shipyards resulting from current and projected commercial ship construction, Navy ship construction and Navy repair and overhaul. The projected ship construction work is derived from the Navy's FY 85 Five-Year Shipbuilding Program and MARAD estimates of commercial new construction. The Navy's portion of the private shipyard workload is projected to increase modestly to about 110,000 employees with the planned Navy shipbuilding and ship overhaul programs.

SUPPORTING INDUSTRY

Ship construction and repair includes the assembly or replacement of materials and components produced by a supporting industry that is spread all over the country. Therefore, there is a strong dependence on suppliers and subcontractors. The Navy monitors this supporting industry's performance. With the decrease in commercial work, the capacity required of the supporting industry to execute the Navy shipbuilding program is well within their demonstrated performance.

PUBLIC SHIPYARDS



CHART 7

There are eight public shipyards as shown in Chart 7. Since 1967, no new ships have been built in the Naval Shipyards. Six of these eight yards are qualified for the overhaul of nuclear-powered ships. The combined employment level of the eight public yards is approximately 79,000 and is expected to reduce some in the coming years. This will result from the reduced number of ship overhauls in future years and our desire to retain the vitality of the private sector to support the Navy.

The Navy mission is to conduct prompt and sustained combat at sea. The Navy maintains readiness to fulfill that mission through almost continuous training, exercise, maintenance, modernization, and self-appraisal. To stay ready for prompt and sustained combat at sea, the Navy relies on maximum self-sufficiency within each ship. The tradition of the near final authority of a ship's Commanding Officer, the ability of the ship to sustain itself under adverse conditions and the ability to go into harm's way in any part of the world are fundamental main-stays of the Navy. It is the starting point for the Navy's three-level ship maintenance and modernization concept. All maintenance that can rationally be accomplished by the ship's crew is done that way. Additional required work is accomplished by sailors assigned to tenders and repair ships (which can be forward deployed) or small activities ashore, the "intermediate maintenance activities." Ship's maintenance and modernization work that is beyond that capability or capacity is accomplished by depot maintenance activities at regular, periodic overhaul periods.

The Navy's depot maintenance capability is an indispensable part of the fleet's readiness for war. It is made up of two components: the eight geographically dispersed Naval Shipyards and the several private sector shipyards that regularly perform Navy depot maintenance and modernization work.

The Naval Shipyards are maintained at the minimum size and levels of employment necessary to accomplish the assigned portion of the Navy's annual peacetime depot maintenance and modernization workload on its complex and moderately complex ships. The ships assigned to the Naval Shipyards have the most complex combat and propulsion systems where the highest skills, strongest technical controls and experience are needed to guarantee quality and performance. Further, this ensures they efficiently exercise their skills and capabilities on needed peacetime work to maintain their readiness to accomplish planned mobilization work and battle damage repair. The remaining peacetime depot maintenance workload is accomplished by the private sector shipyards. In this way, the Navy's required readiness for war is efficiently maintained and the maximum amount of the Navy's ship depot maintenance work is provided to the private sector to maintain a viable ship repair industry for wartime mobilization.

OVERHAUL IMPROVEMENT EFFORTS

The depot maintenance has improved significantly this past year. For example, the total projected delay in completion of submarines in overhaul in Naval Shipyards has been reduced to zero while at the same time the overhaul durations have been substantially reduced. The approval for the Naval Shipyards to operate over the past year without an end of fiscal year personnel ceiling has been an important factor in improving the performance of the yards. This relief from the need to remove several thousand people from shipyard rolls near the end of the fiscal year and then rehire them again after the new year, along with other improvements in operations, has resulted in reduced total full time permanent employment in the Naval Shipyards. If relief from end of fiscal year ceiling control is continued, it is expected that full time permanent employment will continue to shrink somewhat as the Naval Shipyards continue to improve their efficiency and productivity while maintaining their required readiness for war.

Over the past year, an extensive number of coordinated actions have been taken to improve Naval Shipyard performance. Many of the actions were aimed at changing attitudes, improving adherence to prescribed procedures, and bettering interactivity coordination. A performance audit and feedback method has been established. A team of about two dozen of the best Naval Shipyard professionals was selected and trained in the art of auditing. This approach to coordinated improvement of Naval Shipyard performance has been successful in stimulating increased efficiency and productivity. In the private sector, flexibility in contract form has been used to stimulate improvement. The Supervisors of Shipbuilding, Conversion and Repair Offices have been better staffed to ensure more complete over-sight. The Navy's dedication to improving performance in the maintenance and modernization of our ships is strong and effective. All performance trends are in the right direction. Better performance, high quality, cost reduction, and schedule adherence are day-to-day issues with all our senior managers receiving continuous detailed attention.

SUMMARY

I am pleased to report that the status of the Navy's current shipbuilding programs is generally good. We can execute the President's five-year shipbuilding program if that plan is authorized and funded by the Congress. The performance of both the public and private sector in the overhaul, modernization, and maintenance of our ships and weapons is satisfactory and improving. The support of the Congress and this Committee in particular have helped to make this possible.

VICE ADMIRAL EARL B. FOWLER, JR., USN

Earl B. Fowler, Jr., was born in Jacksonville, Florida, on September 29, 1925, son of Earl B. and Veva Carpenter Fowler. He enlisted in the Navy V12 program and entered Georgia School of Technology in July 1943. In February 1946, he graduated with a B.S. degree in mechanical engineering and was commissioned Ensign, U.S. Naval Reserve.

His first duty was aboard the USS COLUMBIA (CL-56). Thereafter, he served on the USS RANGER (CV-4) and the USS WRIGHT (CVL-49).

After graduation from Massachusetts Institute of Technology in January 1949 with a B.S. degree in electrical engineering, he was assigned to the USS LEARY (DDR-879). He then served at the Naval Shipyard, Charleston, South Carolina, and on COMINELANT staff.

Vice Admiral Fowler served at the Navy Radiological Defense Laboratory, San Francisco, and Hunter's Point Naval Shipyard. After 2 years as Material and Engineering Advisor in the Military Assistance Advisory Group, Republic of China, he served on COMSERVPAC Staff at Pearl Harbor, Hawaii.

In September 1965, he was ordered to the Pacific Missile Range, Pt. Mugu, California, as Head, Ship Engineering Division, working on the design of ships for the Apollo Program and National Range Support.

Vice Admiral Fowler came to the Naval Material Command in July 1967 as Project Manager, Instrumentation Ships Project Office, PM-5. He then became Project Manager, Oceanographic, Mine Patrol and Special Purpose Ship Acquisition Project. He attended the Harvard University Advanced Management Program during the fall of 1971.

In January 1972, he reported to the Naval Electronic Systems Command as Deputy Commander for Material Acquisition. Promoted to Rear Admiral on August 1, 1974, he served as Vice Commander until June 30, 1975, and as Commander from August 31, 1976, to March 21, 1980. He was promoted to Vice Admiral and became Commander, Naval Sea Systems Command, on March 31, 1980.

He was awarded the Legion of Merit for meritorious services performed at the Naval Electronic Systems Command. In addition, he has the Meritorious Service Medal, the American Theater Medal, World War II Victory Medal, Occupation Medal (Europe), and the National Defense Medal with star.

Vice Admiral Fowler is a member of Delta Tau Delta, Georgia Tech; Pi Tau Sigma Honorary Mechanical Engineering Fraternity; Institute of Electrical/Electronic Engineers; the American Society of Naval Engineers; and the Society of Naval Architects and Marine Engineers.

Vice Admiral Fowler and Mrs. Fowler, the former Helen Marie Jorgensen of Sioux City, Iowa, reside in Alexandria, Virginia. They have two children, Mary Helen and Joan Ann.

COMPETITIVE BIDDING

Senator STEVENS. Thank you very much.

Senator STENNIS, did you have some questions?

Senator STENNIS. I am certainly interested, Mr. Chairman. I have some pressing matters on the floor. I will have to go over there.

Senator STEVENS. Yes, sir; that is why I would like to yield to you now.

Senator STENNIS. I appreciate it. If I could have the privilege of bringing in a few questions later and sending them in—

Senator STEVENS. I would be happy to submit them.

Senator STENNIS. If I may, Mr. Chairman, I will just take a couple of minutes.

You were having some rather good bids coming in now, as I understand, for your building of ships, and you are saving some money. I know people are concerned that they want to back the military, but it seems like the money bills are getting very high. I feel that way myself.

So anything that you could point to that you are doing that really gets into competitive bidding, and so forth, and savings of money on the contracts I think would be very appropriate. I do not know which one to address myself to.

Mr. PYATT. I think it has been a joint effort of all of us. We have all seen the importance of competition in shipbuilding programs and other areas. I think it has been one of the major contributors to the fact that I mentioned a little bit ago, the savings of \$500 million in the President's budget for the ships that are under contract so far.

I know that many of the shipyards have made productivity improvements, and these have been reflected in the future bids. I think it is one of the most valuable tools that we have to work with.

Admiral Fowler has been responsible for executing the program and he may have some other points.

Senator STENNIS. I will be glad to hear from him.

I am sorry to ask you to be brief, but you will understand under the circumstances.

Admiral FOWLER. Senator, a number of actions have been taken. The shipbuilding industry and ship repair industry has been depressed. It continues to decline. You will notice the chart in my prepared statement that shows the decline on through 1985.

This has caused very keen competition. We have done a number of things to take advantage of this competition, and it has been effective. So that has been a key measure. We have by and large resolved all those disputes of the past that created difficulty between the Navy and the shipbuilding and the ship repair industry. Our relationships with our contractors are generally good. While at arm's length, they are still businesslike, and we try to work on the problems.

We have tried to make sure that we deal with the issues as they come up. It is hard for me to point out single things that have been done. I think there have been a number of businesslike issues, clauses, and actions taken, which have created a climate under

which competition could take place and better pricing could be achieved.

COST OVERRUNS

Senator STENNIS. Well, I remember when we used to have big sums of money here, claims and all, backlogged, you know, deficiencies and so forth. We have had to appropriate \$2 billion or \$3 billion sometimes for 1 year to pay some of those claims.

Now, that has all disappeared. You have a better system. You are bound to have a better system. I do not understand how to build a ship, but I can look at the money figures and tell you have got a better system than we had a few years ago.

Do you want to comment on that briefly, on what you call claims? It was things beyond the contract, as I recall now.

Senator STEVENS. Cost overruns.

Senator STENNIS. Yes, cost overruns is the term that is applied.

Admiral FOWLER. We have taken a number of actions to be sure that Government-furnished equipment, that was one of the big issues, is being delivered on time and that it is received in good condition.

We have tried to put more of our own people in the plants, so that we know more about what is going on and can deal with the issues when they arise. I have increased the staffing of the plant representatives, that I control, from about 3,500 4 years ago to around 4,800 today, so that we have people in the plant to deal with those issues that arise on a day-to-day basis.

We have tried to exercise better technical control and better responsibility for the paperwork that we give the various suppliers and shipbuilders, so that the paper that the Government gives represents the true article that we want and there are fewer disputes about that. That was one of the items that contributed to the claims.

We have reviewed the overall process of shipbuilding and ship repair to make sure that we are taking effective steps at each step along the way to solve whatever problems that arose in the past. I think we have just about completed that. We will never be perfect, but we are much more effective today than we were several years ago, when those difficult situations arose.

Senator STENNIS. You bring us good news.

Mr. Chairman, I would like to have the privilege of framing a few more questions along that line for the record.

Senator STEVENS. Yes, sir.

Senator STENNIS. You can put them in the record and he can file his answers.

You will be willing to answer them in writing for the record, both of you?

Mr. PYATT. Yes, sir.

Admiral FOWLER. Yes, sir.

Senator STENNIS. Thank you very much.

WARRANTIES

Senator STEVENS. Thank you very much, Senator.

I know Senator Andrews also has a timeframe problem. He has been the leader in the warranty movement on this subcommittee, to try to be certain that we have protections to the maximum extent possible of Government interests.

Before I yield to him, I was amazed this morning to hear the story about the space shuttle's engines. It is too bad Senator Andrews was not on the committee that authorized the purchase of those engines. But he is into warranties, that is for sure.

Senator Andrews.

Senator ANDREWS. You are kind, Mr. Chairman. Let me say, as a preface, that there is no way that we would have had that warranty law if it had not been for the support, leadership, and understanding of you, Mr. Chairman, and the senior Senator from Mississippi, Senator Stennis, who has done so many great things in the defense posture of this country.

The reason for warranties is not to harass the Defense Department. It is to make sure people out in the field have weapons that do in fact work and to assure the taxpayers that it is cost effective. That is what the committee had in mind, and having the support of the two of you is why that became law and why it will stay law.

Mr. Pyatt, I read with interest your letter of February 15 to Secretary Gilleece about the draft policy guidance issued on the warranty law, and you said—I am quoting from your letter:

The draft guidance exceeds the requirements of the law and good management, unnecessarily complicates contract negotiations, dilutes contractor obligations for contractor performance, and substantially increases contract costs without any commensurate improvement in weapons systems.

This of course is always the concern that those of us on the legislative side of the table have when a bill becomes law and it is then turned over to the Department to write the regulations. You can totally subvert the intention of the law if you deliberately louse up the regulations.

So of course, we feel that your criticism is right on the mark. For example, the proposal requires warranty costs as a separate line item, just one of the things that would complicate contract negotiations and increase contract costs.

You can imagine what a private customer in civilian life would think if he were charged extra for a warranty. He would immediately, and quite properly, suspect an inferior product and look for another supplier.

GUIDANCE PROPOSAL

Mr. Pyatt, can you assist the subcommittee by identifying other areas in the guidance proposal that convinced you the requirements of the law and good management were unnecessarily being exceeded and loused up?

Mr. PYATT. Well, first of all, it took me almost 2 days to understand what they had written.

Senator ANDREWS. Welcome to the club. We were the ones who wrote the law.

Mr. PYATT. I had some very fine associates working with me to understand the theory. Then I went back and looked at existing practice and tried to apply it to the practice that was followed in

the Navy. I found some places where there were no warranties and I was not satisfied with that. But we also found, in both the ship-building and the aircraft areas, what I thought to be appropriate exercises of the Government demanding quality.

Then I tried to test the guidance proposal against your letter, which I also cited there, and my experience. I thought those were a reasonable balancing of the responsibilities, that the contractor has to turn out quality products, and without going on too long so that you get confused, whether the contractor made a mistake or the Government messed it up.

So I applied that test as I went through and found in the guidance a whole set of new definitions that I had never heard of before, that I did not know how to implement. The series of things that are described in our letter led us to disagree with that particular draft. That is, the draft that appeared in the Federal Register.

Senator ANDREWS. That is the one that concerns us, and the reason for this line of questions, as the chairman and Senator Stennis understand, is that you have the expertise, along with several other people within the Defense Department, to know how warranties are necessary and can be cost effective and can give us a more dependable weapons system.

BROADENING APPLICATION OF DAR-1-324

That is why we look for that leadership, guidance, and candid observation from you and from the Secretary of the Navy, who said it works and is cost effective. What we are trying to do is in effect broaden the application of DAR-1-324, in a sense, and you quote the correspondence to Secretary Gilleece where we pointed that out as one of the fundamental objectives of the law.

If the DAR-1-324 is enforced with the law, very few changes would have to be made. As you mentioned a moment ago, it is a good system. In fact, the present guidance will have the opposite effect. Namely, the DAR-1-324 would be backed by law and good management, it would not complicate contract negotiations, it would improve weapons performance, and would lead to substantial savings.

I believe that is exactly why you say the warranty requirement in law helps you broaden the application of that.

Mr. PYATT. Oh, yes. I would much rather walk into a room and say, we are here to talk about the terms and not the existence.

Senator ANDREWS. That is right, that is right. And you are much better off negotiating with the contractor if you are armed with the fact that the warranty is obligatory.

Mr. PYATT. That is right.

Senator ANDREWS. Rather than optional.

Mr. PYATT. That is right.

ADVANTAGES OF WARRANTY PROVISIONS ON RELIABILITY OF WEAPONS SYSTEMS

Senator ANDREWS. Could you tell the subcommittee the kinds of advantages warranty provisions or the DAR-1-324, which is the warranty provision that exists at the time, has on the reliability of

weapons systems, which is what the chairman just mentioned a minute ago about these engines on the space booster that failed?

Mr. PYATT. It is sometimes very hard to detail precisely, but I think the existence of a warranty in the contractor's management theory says that he is going to have to be responsible for a period of time for the product that he turns out. And there is a different level of care that goes into that. It may be theoretical and philosophical, but I know it exists.

We also pay as part of the design costs for reliability tests for engineering that is involved. But my observation is that it just sinks into the philosophy of the people who are doing the work. They know they are going to be accountable, they know they are going to be responsible. I think that is a very important thing.

PROBLEMS RESULTING FROM ABSENCE OF WARRANTIES ON COST OVERRUNS

Senator ANDREWS. Can you provide the subcommittee, perhaps for the record—to give you time to develop it—some examples where the absence of warranties has meant problems with weapons or cost overruns?

Mr. PYATT. It is hard to directly relate. But as I said in one of the notes that we had, in areas where we tend to have fewer warranties we tend to have more problems.

Senator ANDREWS. Yes. In fact, your exact quote was that you were "firmly convinced that the use of these provisions has contributed to the quality of the weapons systems purchased by the Navy." In fact, you say you tend to have the most problems where warranty provisions have not been the normal course of business.

That is about as straight cut as you can be.

Mr. PYATT. Yes, sir.

Senator ANDREWS. That is why if you could give us examples it would be most helpful.

Mr. PYATT. It tends to be in the missile business where we have our biggest problems.

FLEXIBILITY ON TYPES OF WARRANTIES

Senator ANDREWS. I read with interest a transcript of a briefing given by Secretary Taft on Friday, March 16. He claimed section 794 does not allow DOD the degree of flexibility as to types of warranties. This does not square with our feeling or your feeling.

Would you agree that the intent of the law enforcing existing warranty regulations allows that flexibility?

Mr. PYATT. Our analysis of the law—and I am an engineer, not a lawyer—led us to believe that there was sufficient flexibility within the law. But I would also say that Secretary Taft went through the legislation himself before he issued the last set of regulations—one of our people was there—and analyzed the law with his legal experience and made some conclusions.

Senator ANDREWS. The point is, he has not contacted the committee as to legislative intent, and it is the feeling that we have on the committee that our intent was much closer to your original concept, that we intended it to be workable rather than so complicated that it falls of its own weight.

WAIVER ON COST-PLUS CONTRACTS

I also understand that Secretary Taft has issued a waiver on all cost-plus contracts, and I am aware that there is a type of warranty that is sometimes placed on cost-plus contracts. The warranty has to do with asking the manufacturer to give a best-efforts estimation of the weapon's performance and cost.

Can you tell the committee anything more about this estimation and has it been effective in the production of reliable weapons?

Mr. PYATT. In some contracts—where you are doing it on a cost contract—you are in a situation where both parties try to produce something. In some of the shipbuilding contracts, in particular where we have been under a cost contract, the contractor has had to absorb, forgo any fee due to warranty work. So he has had to pay. That has been our compromise of how we have come about on cost type contracts.

But it is difficult to actually assign responsibility and accountability to either party.

Senator ANDREWS. So it is much better to have a written type warranty?

Mr. PYATT. It is much better to get a fixed price basis where we know who is accountable.

FIXED-PRICE CONTRACTS

Senator ANDREWS. It looks like, frankly, you solved all the DOD ballyhooing about the impossibility of putting warranties on cost-plus contracts. You and the Navy went out and told contractors to come in with fixed price contracts for all Navy vessels and aircraft this year, as I understand it, and I certainly commend you for this action.

Can you tell this subcommittee in general terms how you did this, when other people in the Defense Departments are saying it is undoable?

Mr. PYATT. Here is the leader.

Senator ANDREWS. Well, Admiral Fowler, you carry a great name. Incidentally, one of my family's good friends from Fargo, N. Dak., Admiral Fowler, sir, died tragically in a fire in his home on a base on the West Coast about 8 or 10 years ago. So the name of Admiral Fowler is well known in Fargo, N. Dak.

If you could add to that, we would appreciate it.

Admiral FOWLER. I do not think I have any relatives in North Dakota.

Senator ANDREWS. Unfortunately, no, but he was good folks.

Admiral FOWLER. I have a wife who came from just across the river in South Dakota.

Senator ANDREWS. She just could not stand those tough winters in North Dakota. [Laughter.]

Admiral FOWLER. That is right.

Senator ANDREWS. Can you tell our subcommittee how you managed to issue these orders to have warranties on all your ships and aircraft this year?

Admiral FOWLER. We have used the same clauses for quite some time. I do not think we have changed our clauses at all since 1981.

I have had some kind of a warranty arrangement in shipbuilding for some time.

On the fixed price arrangement, we have moved in this competitive marketplace that we have now and over the last couple of years to more and more fixed price type contracts. We did well this year. The one that we had some doubt about was the LHD-1 with Ingalls that was recently awarded, and in reviewing that we decided to go with a fixed price contract because we had a sufficiently definitive design.

Just a week ago yesterday, I spent from about 8 o'clock in the morning to 7 o'clock at night reviewing the DDG-51 design, and it appears to me that we have as definitive a contract design as we have had in a long time, and it is a ship that we can properly compete on a fixed price basis. The draft RFP will probably hit the street tomorrow, and I have full confidence, if the Congress supports it, that we will award a fixed price incentive type contract in December for this ship.

As part of good definition of what you want, part of the warranty arrangement causes us to sit down with the contractor and make sure that we understand what the end result of that contract is to be, what the product is to be, so we have a thorough understanding up front.

I think that should have been one of my comments to Senator Stennis' question about what has changed, that is to try to get a better understanding between the Navy and the contractor about what the end product really ought to be and try to establish the thinking in both our minds that we want to be successful.

We want good weapons. A good contractor wants good weapons, too. So if we can get that as our objective, rather than trying to set up a situation where we can have a lot of lawyers go and argue about how much it is going to cost later or after the fact, we are better off.

We try to set the objective up, understanding what it is that we want to buy, and that we want to be successful in that endeavor.

Senator ANDREWS. In other words, the Navy's experience with warranties goes right along with the subcommittee's intent to have warranties broadly put into effect, because the first priority is to have reliable weapons to fight with.

Senator STEVENS. Senator, I am going to have to interrupt you. We are going to have to stand in recess so we can make this vote.

Senator ANDREWS. Just one more question and I am done.

Senator STEVENS. All right.

Senator ANDREWS. Is that not essentially the point?

Mr. PYATT. Yes, sir, we fully agree.

PARTS REPAIR OR REPLACEMENT BY MANUFACTURER

Senator ANDREWS. Let me then finally quote from the transcript of the briefing held by Secretary Taft. When he was asked why a weapons manufacturer should not assume the risk of repairing or replacing defects in workmanship, material, or performance, Secretary Taft answered this way:

If a certain risk can be more cheaply assumed by the Government than assumed by the contractor then it does not make sense to pay him to assume it.

But given, Admiral Fowler, what you just said, what Mr. Pyatt just said, given a solution—a situation where the contractor is using his material, his work force, he has agreed to the production contract and its specs, why should the Government have to assume any risk in defects in any of these areas?

It just flies in the face of the dependability of the weapons system that you just mentioned was crucial to the Navy's intent.

Mr. PYATT. That is right. I can think of very few cases where that case should pertain. Most of the time, the contractor should be able to do it less expensively than the Government. He knows the system, he knows how it works, he knows how it was designed, and can analyze the flaws much better than the Government.

C-5 AIRCRAFT

Senator ANDREWS. There is in effect a fail-safe system out there if there is a known warranty requirement. In the case of the C-5, for instance, I do not think the Lockheed engineers would have gone along with that weakening of that wing spar if they had known they were responsible by warranty. They would have told the designers in the Pentagon: Hey, wait; we have a warranty requirement; take a look, rethink the design.

And we would have had the dependability and the performance of the plane, but we also would have saved \$1.4 billion. Is this not in essence what could happen in many other weapons systems?

Mr. PYATT. This is what I mentioned as the philosophic approach and the train of thought that goes through the management process. That kind of problem will raise that issue.

Senator ANDREWS. And you will get a weapons system that will work far better.

Mr. PYATT. Yes.

Senator ANDREWS. And that is of course—Secretary Lehman told us at breakfast, Senator Stevens and I, that this warranty being mandated now by law gave him a great bargaining chip in the contracting for the Harrier that went on just a few weeks ago, because as I understand it he told them he had to get the warranties, and he got the reliability in the contract.

Is that essentially correct?

Mr. PYATT. That is correct.

Senator ANDREWS. And you are acquainted with that contract?

Mr. PYATT. I was a party in that.

Senator ANDREWS. And the fact that warranties were now mandated by law gave him and you a much better ability to negotiate with that contractor for a dependable weapons system.

Mr. PYATT. Right.

Senator ANDREWS. Thank you very much.

The committee will stand in recess until the chairman returns from the vote.

[Recess.]

CARRIER GROUP BUDGETS

Senator STEVENS. I am sorry for the interruption, Mr. Secretary. We will have more as we go along.

I would like to get into some of these things about the Navy budget in a little more detail. We have got some conservative estimates that place the cost of one fully defended carrier group at about \$17 billion. That is almost the same as the entire fleet of B-1's, almost the same as the MX program.

Now, unless the future defense budget growth follows the same path as the last 3 years, it is unlikely that we are going to be able to fill out that 15th carrier group. Have you examined the alternatives to the current program in this budget based on the recent readjustments that we have agreed to?

Mr. PYATT. There has been some work going on in the Pentagon looking at the recent agreement and it is not complete yet.

Senator STEVENS. I understand. I am not asking to pin you down in terms of that, because I am sure that is an exercise literally that is going to take the DOD a long time to work out, that reduction.

I had a discussion about the 15-battle carrier groups the other day when we had other people from the Navy here. We have got—if you follow the current delivery schedules, the Navy will reach the 15-carrier objective with the delivery of the *Abraham Lincoln* in 1989. When the 16th carrier is delivered, the *George Washington* in 1991, the Navy will retire either the *Coral Sea* or the *Midway*.

Why not retire the training carrier *Lexington* now and replace her with one of the other two older carriers?

Mr. PYATT. That possibility is under consideration.

Senator STEVENS. Well, if that is the case I am not going to press it.

INTEGRAL SONAR SYSTEMS

Let me go to another matter. We understand from a spokesman the other day from the Pentagon that only the *America* has its own integral sonar system among the big deck carriers. Is that so?

Admiral WALTERS. That is correct. The *America* was the only one that was designed with that sonar system on board.

Senator STEVENS. Does that have anything to do with the problem the *Kitty Hawk* ran into the other day?

Admiral WALTERS. No, sir.

Senator STEVENS. It does not at all? If it had sonar it would not have known about the fact that that carrier was—that submarine was underneath her?

Admiral WALTERS. Well, in that sense perhaps it could have contributed. But I think there were other factors involved that might have resulted in that incident whether or not she had sonar.

Senator STEVENS. Well, why do we have investments that large without sonar?

Admiral WALTERS. Well, I think we—

Senator STEVENS. And what led to only the *America* having sonar? I mean, when you run into something like that someone must have said the *America* needed it. Now, why, among all of these—I take it, then, of all the new 16 we only will have sonar on one of them?

Admiral WALTERS. When *America* was built, if my memory serves me correctly, Mr. Chairman, she had both a surface to air

missile system and a sonar. At that time that is the way they designed the ship.

I think some of the choices have been made on what armaments have been put on the ships fundamentally as cost tradeoffs in capability, wanting to concentrate capability in the air power that is associated with that ship and knowing that we have other systems in other ships that provide the ASW and the AAW protection that is integral to a battle group.

She is the only carrier to my knowledge that was ever built with the sonar, and that sonar is no longer operating in the ship. She just has the sonar dome and the equipment there.

Senator STEVENS. All right.

Admiral FOWLER. Senator, the aircraft carrier is just technically not a good hull to put sonar in. If you are going to have sonar in the fleet, that is not the place to do it, just like flying planes off a destroyer is not a very effective way of doing business.

From time to time in the long period of time I have been in the Navy, we have put sonar on some of the big ships, some of our big cruisers, and some of the aircraft carriers, and it has always turned out to be a bad idea, as we have known it to be. And that was one of those instances where we did do it.

Admiral WALTERS. If I could follow up on that, it is just the nature of the operation that the carrier does, the fact that she is large, very noisy. Sonar operations operate best in ships that are designed to be able to devote a significant part of their activities to that sort of thing, and they are designed with quieter hulls and their operations permit them to devote a significant part of their time to looking for submarines.

Senator STEVENS. Well, the carrier just sort of stands out with us, and I have had questions here from other Members of the Senate as to whether we are going to go into this *Kitty Hawk* thing. It raises a question among other Senators, and I raised it myself.

How does the *Kitty Hawk* run into a submarine? I mean, even assuming that the Soviet sub commander made a mistake, we still should have known where it was.

Admiral WALTERS. Mr. Chairman, we did know that the submarine was there. The fact that it was in the precise position to run into the carrier was really a circumstance that happens when you have ships maneuvering close together at night. And it appears that the submarine became confused as to where he was.

I do not lay any of that to any fault of the *Kitty Hawk*. The *Kitty Hawk* was performing a function—performing her operations in a group of ships, and they were doing their thing. They knew the submarine was there. It is incumbent upon the submarine in this case to stay out of the way, and it simply did not.

Senator STEVENS. All right.

FUNDING OF MISSOURI

Mr. Secretary, your statement suggests that savings from the current programs may be sufficient to fully fund the *Missouri* this year, is that right?

Mr. PYATT. Yes, sir, the savings from 1984 and 1983 prior year programs taken together.

REPROGRAMING

Senator STEVENS. And I assume that you are assuming the approval of the reprogramming in that statement?

Mr. PYATT. Yes, sir.

Senator STEVENS. You do still want that reprogramming?

Mr. PYATT. Yes, sir. I think the reprogramming is particularly timely now, because one of the things that the reprogramming was built on was a shorter period in the shipyard, and from that shorter period in the shipyard come some actual savings in the modernization process, at least \$13 million.

Senator STEVENS. We have a reprogramming in the amount of \$73.4 million. Will we get an additional reprogramming, then?

Mr. PYATT. The problem that we have, the procedural problem, is that part of the money is in prior year programs and not in 1984. We have to figure out how to handle provision of prior year money against the battleship. As I understand it, there is some prohibition from moving 1983 money into 1984. But we have to work on that.

Senator STEVENS. Mr. Secretary, are you saying that you do not think you have the authority to seek reprogramming for that prior year money?

Mr. PYATT. We have to find a procedural way to apply prior year money against the battleship. We think it can be done.

Senator STEVENS. Well, we will be happy to cooperate with that. I have reviewed it and we will be pleased to approve it. It seems that there is going to be a savings as a result of that acceleration.

Mr. PYATT. Yes, sir.

Senator STEVENS. That is the understanding that I have. So we will be glad to work with you on it.

Mr. PYATT. Thank you, sir.

ATTACK SUBMARINE

Senator STEVENS. On the attack submarine, Admiral Fowler, you testified yesterday that—last year, not yesterday; it seems like yesterday—that it was necessary to maintain a construction rate of three and a third submarines per year to reach the force level of 100 submarines.

Yet this year we have got a 5-year shipbuilding plan that calls for 4 per year. Why do we have to have 4 per year? Could we not have four every other year and maintain your three and a third a year rate?

Admiral FOWLER. I think I will have to defer that one to Admiral Walters.

Admiral WALTERS. I can take that one.

Admiral FOWLER. It is his requirements that you are talking about, Senator.

Senator STEVENS. Well, why can you not live with three attack subs yearly? We have got to find someplace to reduce this budget. It would seem that one of the ways we can reduce it in the cost effective areas where you have got a minimum efficient rate of production, and we understood last year it was three and a third.

So why can we not stick to that three and a third?

Admiral WALTERS. Well, if I may, I will answer your first question, which is why did we change. The requirement, of course, to maintain a 100-submarine force level would require building ten every 3 years, which is the three and a third.

The reason that we upped the building rate was in order to achieve that force level objective earlier. In 1978-79, for example, we only built one. We have only built two submarines for the last several years up until last year, when we were authorized three.

Senator STEVENS. Well, do you not look at this from the point of view of the minimum efficient rate of production?

Admiral WALTERS. Yes, sir, we do.

Senator STEVENS. What is the minimum efficient rate of production on attack subs?

Admiral WALTERS. I will have to defer that answer to Admiral Fowler.

ELECTRIC BOAT AND NEWPORT NEWS YARDS

Admiral FOWLER. We have looked pretty hard at the issue of how many submarines we could build. We have two yards that build submarines, Electric Boat and Newport News, and we are building attack submarines in both yards. Electric Boat is also building the *Trident* submarine at a rate of one a year.

The minimum number you can build efficiently is a very difficult thing to say. The overriding consideration is how we award them, how competitive these two yards are. You have minimum competition when you have only two yards building submarines, among the other things that they are doing.

So there is not a simple answer, a simple number that says this is the minimum number. Electric Boat is doing much better on their performance in recent years. They are building submarines in a shorter period of time. Generally speaking, both Newport News and Electric Boat are doing a good job of building submarines.

Senator STEVENS. Well, I want to encourage you to look at this problem this year, not as just a 1-year problem. This is a 5-year problem for the budget. We have entered into an agreement on 3 years. We know that there is not going to be an increase beyond 5 percent a year for 3 years now. That has been the understanding.

Yet, in terms of the overall budget in the Department, it is hard to find ways that we can make reductions this year that will not force us to make even worse decisions next year.

Now, one of the things we can do is get back on the line of just looking at what is the minimum efficient rate of production, and the ramping up of submarines is one of the things that is going to cause a bow wave on that budget. If you go up to four, something else is going to give in this budget. And it may well be the whole question of your carrier force or the whole goal of the 600-ship Navy is going to be sacrificed somewhere down the line because we did not make the judgments now as to what rate of production we can sustain.

I am not one who believes we are going to lose this election. But I will tell you, if this administration changes this thing is going to change considerably.

Admiral FOWLER. I do not believe going to four is an inefficient way to produce submarines, Senator.

Admiral WALTERS. Let me assure you, Mr. Chairman, that we are looking at all of these issues. We are just not at liberty yet, because all the decisions have not been made, to discuss how we are going to address the new budget guidance. So we can really only discuss it on the basis of what we have presented in the budget and answer your questions regarding those requirements.

Senator STEVENS. I understand you.

Admiral FOWLER. We do look at it over the long term. I look at both the nuclear submarine construction and overhaul on a 10-year basis to try to see what the long-term projections are. We are particularly concerned with just two yards building submarines versus what the Soviets have, that we could be in a very tight situation. But I believe that the fourth submarine is a cost effective submarine at this time.

Senator STEVENS. Not if you do not have the money.

Admiral FOWLER. Well, I am not talking to the issue of whether or not—

Senator STEVENS. I have got a problem of cutting this back to 5 percent.

Admiral FOWLER. I am only talking about the produceability, not the affordability.

Senator STEVENS. I understand. But I think you all have got to give some advice as to what you can do. CBO—last year I opposed ramping up to four submarines and we lost. Now you want to maintain the four level on a yearly basis.

The CBO says we can hold it to three per year and extend the service life of five of the older submarines that you currently plan for retirement, and that that would save almost \$4.5 billion over the 5-year period. What is wrong with that? You would have just as many submarines.

Mr. PYATT. It depends which submarines they are talking about extending. I just do not know what the submarine names were. If they are at a place where the core life is out, it is still a major overhaul and expensive.

Senator STEVENS. Well, I think they took that into account.

Admiral WALTERS. Well, on each of the classes of ships, be they, particularly submarines or be they even surface ships, that we extend, they are subjected to a thorough analysis of their life expectancy by Admiral Fowler's people, and we take those things into account.

As a matter of fact, in our budgeting and planning process we frequently ask them to do those kinds of studies. But I too am not familiar with the particular report that you are mentioning from the CBO and which classes of submarines. I do not know if those have been examined for service life extension.

Senator STEVENS. Well, we would invite your attention to it.

I see Senator Chiles is here. Senator Chiles, do you have some questions?

FINANCING OF CARRIER GROUPS

Senator CHILES. Mr. Chairman, I am just interested in the overall thrust of our hearings. You started to raise a point I think at hearings that we had recently of how can we afford to be buying all of the ships now that we are going to go with the carrier groups, the new carriers that we are putting on. I am interested in that line of discussion, of how we are going to be able to finance all of those carrier groups that we are talking about or whether that is a direction which we are going to be able to take with the new carriers.

I do not know whether you had a chance to go into that.

Senator STEVENS. Well, I did just go into that a little bit about the question of whether we can maintain the construction schedule for the 15-carrier battle groups, that really it puts us into the concept of a sixteenth carrier in 1991, which leads to retirement of the *Coral Sea* or the *Midway* then.

The Secretary and the admirals told me that this is one of the matters that is under consideration now in terms of the budget review caused by the last budget negotiations that we have just gone through, which will bring about an overall reduction at DOD down another \$14 billion, with out year projections to 1986 and 1987 of equal or greater magnitude. Holding at a 5 percent level for 3 years is going to have a substantial impact on some program, and I have asked about the carrier group prospect.

Senator CHILES. Well do we have any understanding yet, given the fact that the administration is now talking about a 7 percent rate of growth for defense as opposed to 13 that they were talking about in the budget submission?

Senator STEVENS. That is authorization. Ours is outlays. We are dealing with outlays here.

Senator CHILES. Well, I understand that. But even from that authorization, that means that ultimately something that the administration had planned for before is probably not going to be there.

Senator STEVENS. That overall scrubdown has not been completed yet, as my understanding.

Senator CHILES. We do not have any—

Senator STEVENS. We do not have that yet. We are exploring several of the areas that are involved.

Senator CHILES. Well, that is really the area that I had some interest in.

Senator STEVENS. I would be happy if you have any questions at this time.

Senator CHILES. No, thank you.

DDG-51

Senator STEVENS. Let me go to the DDG-51, then. Last year we had a projected level, force level for the new destroyers, at 63. Now I understand that is down to 29, and you are requesting \$1.2 billion for the first of the *Arleigh Burke* class destroyers.

Is this now a new requirement that you have outlined as far as those destroyers of that class are concerned?

Admiral WALTERS. No, sir, it is not, and I frankly do not know where the 63 number came from, because I testified last year to 29,

I am certain. I think that perhaps it comes from the total force level objectives for cruiser-destroyer type ships, and it assumes that we are going to fill that solely with the DDG-51.

We have specifically programed, I know, for the past 2 years, on a force level of 29, to replace 29 ships of DDG-2 and 39 classes. I do not know where the 63 number comes from.

Senator STEVENS. All right. One of the things I want to get clear is what the cost of these is. We have on a classified basis the number of destroyers of this type that would be required for a minimum force for the 15-carrier Navy group. That is where that figure came from.

Admiral WALTERS. That is correct, and that is why I mentioned a while ago that the only thing that I could think that that number relates to is the total force level objective.

Senator STEVENS. That is a minimum force level objective.

Admiral WALTERS. That is correct. That is based upon 238 combatants, to fill out the 15-carrier battle group, 600-ship Navy.

Senator STEVENS. Well, that is what we are saying. I mean, if we are going ahead with the 15-carrier battle groups, then how did we get down to 29? How can you protect 15 carriers with that number of destroyers?

Admiral WALTERS. The reason is that in looking at the DDG-51 program, the first requirement we have to do is to replace the 29 ships that I mentioned, because they are simply going to wear out at the end of this decade. They are 30 years old, they cannot be modernized, and we have to replace those.

So the DDG-51 number accounts for those 29 ships. Now, in order to fill out our force level requirements, we are going to extend the service life of several cruisers and a few of these DDG-37 class ships. We have asked the Naval Sea Systems Command in the case of several cruiser classes—and the DDG-37's are being looked at right now—if they can be service life extended.

They are big enough and relatively modern enough and in good enough shape that we think they can be extended with some modernization which we have planned for them. We would expect to maintain those ships through about the year 2000. And that is how we are making up the difference.

The other reason that we limited the DDG-51 class to 29 ships was that we felt quite sincerely on an affordability basis that we could only build x number of ships per year.

Senator STEVENS. I hope my friend from Florida is listening to this, because it looks to me like you are still heading for the 15-carrier battle groups, but we will be about 60 percent short of the destroyers to protect them when we get to 1991.

Admiral WALTERS. We will be at about 80 percent of the level of destroyers that we need to support that level of fleet, yes, sir.

Senator STEVENS. Only if you extend the DDG-37's beyond what would be their normal life.

Admiral WALTERS. That is correct.

Senator STEVENS. Which will be very expensive.

Admiral WALTERS. Yes, sir.

600-SHIP NAVY

Senator STEVENS. Well, why not ramp down to a 14-carrier battle group now? Is there not some way to review that concept of 15?

Admiral WALTERS. We have the 600 ship Navy and the 15 carrier battle groups fundamentally on the basis of how we understand the national strategy and how maritime strategy must support the national objectives. And we have simply said in any statement that we consider this to be the size of a force that we need to carry out the objectives that have been stated to us by the national command authorities.

Senator STEVENS. Well, I have got to tell you, you know, and I have been as supportive as I can of the Navy, although some people over there do not believe it, but you are heading right into the B-1 and the MX. That 15 carrier battle group is just as expensive as either one of those weapons systems, and from what I see probably more, because we have not figured in the total cost of the other surface ships to protect that 15th group.

And with this DDG-51, we have a price tag of \$700 million each. That is like the fly-away cost for those A-6E's or F-6E's, whatever you want to call them. That is really not the total cost, is it?

Senator CHILES. That is 1982 dollars, isn't it?

Admiral WALTERS. That is 1983 dollars.

Senator STEVENS. It is 1983 dollars, but actually it is really not the total cost. It is like the fly-away cost. It is the unit cost we identify for comparison, but the total cost is over \$1 billion apiece.

END COSTS ON SHIP

Admiral FOWLER. No; we are still dealing with end cost, Senator. End cost on a ship includes almost everything that goes aboard.

Admiral WALTERS. And the spare parts, everything else.

Senator STEVENS. We have got your 5-year plan: 1987, three ships, \$3.058 billion.

Admiral FOWLER. But those are still within that target of \$700 million for the 6th through the 10th ships in 1983 dollars.

Admiral WALTERS. We defined this, Senator, in 1983 dollars.

Senator STEVENS. The trouble is we spend annual dollars on this committee. Everybody keeps telling me about, you know, this is just 1982 dollars or 1981 dollars. We are dealing with 1985 dollars, you know, and next year we will be dealing with 1986 dollars.

And everybody keeps thinking we are going to get inflation plus a real growth. We have not gotten very much of that. We are 1 percent over inflation this year with this 5 percent thing, the way it looks like to me, because your inflation in the Navy area is running in excess of national inflation.

Admiral WALTERS. Well, I agree it is difficult. We go through a lot of financial manipulations in order to try to explain things, and I certainly agree with you that it fuzzes up because of that.

But I think if you just consider it this way, that no matter what year we are talking about, the cost of the destroyer is going to be 70 percent of the cruiser. And we have gotten into the business of trying to compare the cruiser with the destroyer, and that is where we have had to generate some figures so we can make them on a common basis of comparison, because you cannot compare the cost

of the lead ship of a new class, which has got a lot of nonrecurring costs, initial design, initial tests and checkout, against a ship that is in series production and come up with a comparative number.

Senator STEVENS. Would we not be better to plan for 14 carrier groups with 100 percent of the surface ships and auxiliaries than to plan for 15 carrier groups with 80 percent of the surface ships and auxiliaries? I mean, I just do not see the national policy here that says every time one comes in we are going to send one out.

I was told the other day that the reason we have got to have 15 is that we have three different groups, we have one in repair, we have one out, and we have one getting ready to out, so that it is a nice logical system. But it seems to me that there ought to be some way to program so that, at least as far as the surface ships and auxiliaries—they do not need as much repair as the big ones do when they come back, do they?

Is it really a fact that we are going to be able to put 15 out there, with the budgets that you see coming ahead now? Now, I am serious. B-1, if it starts, it is not going to be easy to ramp down either.

MX MISSILE

The MX is not too easy to ramp down, and we are assuming MX at the current rate of production, by the way, not at the ramped-up rate of production. If you assume the current rate of production of B-1's, the current rate of production of MX's, you are the ones that are ramping up, and you have got your head right above the—you know, if there is a turkey shoot it is going to be the Navy.

Admiral WALTERS. Well, I think that our rate of growth has not been the highest ramp-up.

Senator STEVENS. But it is in the out-years, because you cannot slow these things down once you start them.

Admiral WALTERS. Well, I think we are in an area where it is very difficult to answer your questions, Mr. Chairman, from the standpoint that we have planned this on the basis of the budget guidance that we were given earlier. We are over here now trying to defend the President's budget this year—

Senator STEVENS. I understand.

Admiral WALTERS [continuing]. Before the decision was made to reduce the budget.

Senator STEVENS. I understand your position, and on the basis of the original budget and the projections into the outyears—

Senator CHILES. I think maybe what the chairman is trying to tell you, to listen to it, is that there already have been some changes in the President's budget. There may be further before we get through with this Congress, and you have got to look at those numbers, especially toward whether there is just going to be the money to build the kind of numbers in the DDG that you are talking about.

So alternatives, whether we are talking about smaller battle groups or whether we are talking about extending the line on our old destroyers or looking at whether the *Aegis* is a better buy—all of those things are going to be things that I think you need to be considering. I guess we do not need to tell you that.

Mr. PYATT. Well, we clearly understand the issues that the chairman is raising, and we also have a planning process we go through annually, and in that planning process will be reflected the new guidance, and we will just have to sort through what is the best way to live within the resources being made available.

CBO REPORT ON SHIP CONSTRUCTION

Senator STEVENS. Well, I invite your attention to the CBO report. One of the other reports suggests building six more CG-47's and deferring the DDG-51 program for a few years. They estimate that in a 5-year basis that would save another \$6 billion total in the time-frame of 5 years.

Mr. PYATT. I will read the report, but I find that one hard to swallow.

Admiral WALTERS. I have read that report and I simply do not agree with it. We are talking about building a ship that is fundamentally smaller, that is a little less capable. We can build it in quantities that we need for less price than we can buy a similar number of cruisers.

Cruisers will simply not satisfy our problem in the numbers we are talking about to get to that balanced force that you mentioned earlier. By building an equal number of cruisers to the DDG's that we require would require \$17 billion more.

Senator STEVENS. I think you better give us some of those figures. You know, you all have the luxury of sitting over there talking to everybody that agrees with you. You know, I sit here and talk to a committee that we start off behind. We are one vote minus on everything we start on to begin with.

I tell you, it is just not going to be possible to fund the budget the way it has been presented to us. And I hope that this review that is going on now is on a 3-year program, because that is what we are looking at now is a 3-year program as a minimum.

When we fund something this year, we are going to have to make sure we can fit it into 1986 and 1987. And we have not had to do that before. But now this year, it is an absolute necessity, and I just do not think we can go through this thing on an annual basis.

We must have—and I know you have got the same objective we do, is to get the best possible Navy for the amount of money we have got available. But it does seem to me that the luxury of that fifteenth group is something that you are going to have to look at. I think your DDG-51 program is in trouble, if not this year certainly next year, and that is the trouble.

That is what makes the cost go up. We start a program 1 year and then we go back down the next year. It is the roller coaster that costs money in defense. It is not the constant rate of production. We see that all the way through here.

I urge you to review that submarine for the same reason. You have got four for 1984. We could get along with three and set up a program of four 1 year, three the next, and probably hold it through this period. But if you go up to four, most assuredly we are coming back down to about two in 1986, which does not make any sense, increases the cost of production.

But surely it is going to happen, because 1986 and 1987 are worse budget years than this year. And if you do not believe it, take a look at the interest rates yesterday.

Admiral WALTERS. No; we understand that, Mr. Chairman. It is just that we plan our programs based upon the fiscal guidance we are given, and the fiscal guidance has changed, and we are behind the power curve right now until we come up with the new answers.

Senator STEVENS. A 1-percent increase in interest rates is equal to 14 DDG-51's, a 1-percent increase. That is what it would cost the Government to pay interest on the national debt, would be \$14 billion. At least 14 DDG-51's are cut out automatically by a 1-percent increase in interest rates.

We have seen this year that defense is the place that pays. We have got 27 percent of the budget and we paid one-half of the cuts as far as the program was concerned.

I am almost beginning to think there must be someone else, there has got to be someone else, who has got an answer to this thing. I do not see any answer other than starting to get you all to reschedule these programs, to look at those out years.

Mr. PYATT. Yes, sir, we understand the issues that you have raised, and as I mentioned we are going through a preparation of our out year budget now and those numbers have been passed down to the services to work on.

Senator STEVENS. Yes; but Mr. Secretary, I think your area above all has done an excellent job. I think that the way that these ship contracts have come in have been fantastic. I did not believe you could keep within the rate as far as the battleships. I still do not think we need as many. But you have kept the costs down.

But we are in a situation now, we do not have the easy cuts of the inflation adjustments and the fuel adjustments and the deferral of a few end strength people as far as changes in end strength. These next 3 years are the hard cuts.

Mr. PYATT. I understand.

Senator STEVENS. I really hope that you give us—when you give it to us, you give us something that is defensible on the floor, or they are going to make the cuts for us on the floor in places that you and I would not want to see.

Mr. PYATT. Yes, sir.

[The information follows:]

Affordability of the 600-Ship Navy

1985-1989 program. The SCN appropriation for FY 1980 was well below the sustaining level. The FY 1983 "spike" provided funds for two nuclear powered aircraft carriers (CVN). Corrective action by the Reagan Administration since FY 1981 has put SCN back on track by FY 1985.

Maintenance of the 600-ship Navy (600 Battle Force ships and about 50 local Defense and Miscellaneous Support Force ships) requires construction of about 18.5 new ships per year and conversion or reactivation of about 3 ships per year. This is based on an approximately 30-year average life for all ships of all types. (Some ships, such as carriers, have longer lives, some acquisitions or conversions have shorter lives.)

The authorized level for construction and conversion for the past five years has been lower than the 600-ship Navy sustaining level. The shortfall in 1980 was 8 ships; for the FY 1980-1984 period, the shortfall was 23 ships. The FY 1985-1989 plan includes 24 ships over and above the sustaining level to balance out this shortfall and to sustain the 600 Battle Force Ship Navy in the 1990's.

Affordability of the Plan

The following table shows FY 1981-1989 SCN budget authority and real growth from year to year.

	FY 81	82	83	84	85	86	87	88	89
SCN (FY 85 \$B)	9.3	10.5	18.2	11.4	13.1	12.8	13.6	14.0	14.7
Real Growth b (Percent)	6	13	73	-37	15	-2	6	3	5

Real growth from year to year varies significantly. This is due to the variation in mix of ship types that occurs from year to year. The prominent example is the effect of the two carriers authorized in FY 1983 - real growth was 73 percent, FY 1983 over FY 1982. Then, in FY 1984, real growth was negative when compared to the 1983 budget which contained two carriers.

The average annual real growth from FY 1981 to FY 1989 is 6 percent. Average real growth for the SCN plan in the President's Budget Request for FY 1985 is only 2 percent. Real shipbuilding growth has been trimmed to less than average Defense budget growth, but the program sustains the additional ships required for the 600-ship Navy of the 1990's.

At the same time force levels are increased, modernization of the Battle Force ships must take place to assure that the ships of the 600-ship Navy are equipped with new technology systems capable of coping with a modernizing and expanding threat. Some real growth is necessary for modernization; new technology has always required real growth in funding.

The Shipbuilding Plan

In 1981, the Administration embarked on its Defense Recovery Program. Part of that program is a plan to increase the size of the Navy from 479 Battle Force ships in 1980 to 600 Battle Force ships by the end of the decade. To accomplish that buildup, immediate increases were made in the Shipbuilding and Conversion (SCN) budget request to construct the additional ships required.

The actual and planned SCN funding level is shown in Figure 1. The amounts shown in Figure 1 are in constant FY 1985 dollars - constant dollars are used so that inflationary effects will not obscure the key points of this analysis. The amounts shown for FY 1984 and prior are actual authorized and appropriated amounts. The amounts shown for FY 1985 and beyond are the amounts in the SCN Plan in the President's Budget Request for FY 1985.

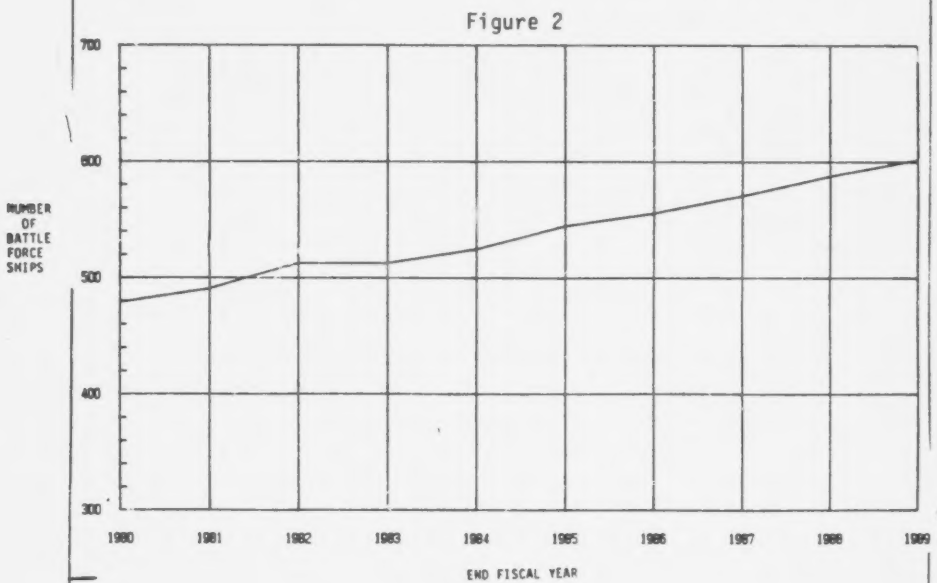
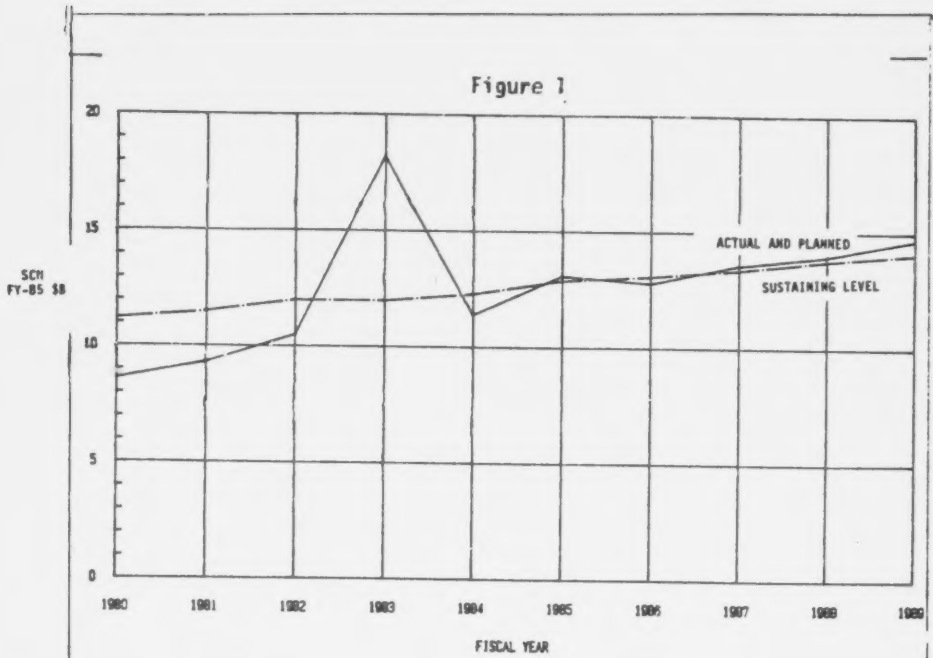
Figure 2 shows the number of Battle Force ships. Note that the Navy's ship forces are built not only with new construction ships, but also by acquiring ships already constructed, by conversions and by reactivations, all funded in SCN. Note also that "Battle Forces" includes active warships, amphibious and mine warfare ships, mobile logistic support force ships, major auxiliary ships and Naval Reserve Force warships, amphibious and mine warfare ships. The Navy also operates Local Defense and Miscellaneous Support Forces which include other auxiliaries, sealift ships, and some Naval Reserve Force vessels. This latter category, now about 60 ships, will decline to less than 50 ships by the end of the decade when the category will comprise, for the most part, sealift ships.

A "sustaining level" was calculated for SCN (Figure 1). This sustaining level is calculated by figuring the average number of new ships of each type required to be built per year to maintain the Battle Force level in that year. For example, to maintain a 15-carrier force in the 600-ship Navy with carriers which would be retired at 45 years of age, one-third ($15/45 = 0.33$) of a carrier needs to be constructed each year; to maintain 100 attack submarines with 30-year lives requires construction of $100/30 = 3.33$ submarines per year; and so forth for each ship type. By summing these averages for all types for each year, one can arrive at an estimate of the SCN required to maintain the force level in that year.

Ship prices used to figure the SCN sustaining level are the prices of the ships that would be procured in that year. Carrier prices are those for the two CVN's authorized in FY 1983, SSN prices are SSN 688 for FY 85-88 and estimated new design SSN price for FY 1989, DDG prices are estimates for the DDG-51, CG price is that of the CG-47, etc.

As Figure 1 shows, the planned SCN increases, but remains very close to the sustaining level. There is no slack in the FY

The 25 percent increase in Battle Force ships during the decade of the 80's is based primarily on prior year authorizations for FY 1981, 1982, 1983, and 1984. The FY 1985-1989 shipbuilding program is the minimum required to sustain and modernize the 600-ship Navy in the 1990's. The growth of the FY 1985-1989 program is less than the average for the decade - it is a "bare bones" program. It is an affordable program.



Admiral WALTERS. Again, Mr. Chairman, if I could, just on the issue of the DDG-51. You know, that has been a conscious effort on our part from the very time that we started to design that ship, was to design a ship that we could better afford. Yet, we seem to be getting the most criticism by the comparison with the cruiser, and we have designed it to be a cheaper ship.

Senator STEVENS. I have got to go to another thing, but let me ask you one last question. We had a series of questions, discussions here recently—I have been in them—particularly in terms of the percentage of work that is in Government yards as compared to private yards.

Would it be possible to compete the overhauls on a basis where we literally had a competition between the Government yards and the private yards? Today it is just between the private yards. Why do we not bring the public yards into that competition?

I think it would take some slide rule to do it, but I have got an idea that this arbitrary allocations of work to the public yards is actually costing us more money in the long run. I sit in the other subcommittee, that deals with questions of COLA's and retirement and all of the benefits that go along with permanent employment in the Federal service.

There is not permanent employment in the Federal service in the private yards, and I think right now it might well be that maybe some of those public yards would have to sharpen their pencils a little bit if they were in the competition. Have you ever tried to put them in the competition?

Admiral FOWLER. In essence, we do have a competition among our navy yards. It is not quite as formal as it is in the private sector. I try to foster that.

Senator STEVENS. But that is between the navy yards.

Admiral FOWLER. Yes, sir.

Senator STEVENS. It is not between the navy yards and the private sector.

Admiral FOWLER. That is correct. I would like very much to have that sort of competition. We would have to do quite a number of things to make it realistic and make it honest and a true competition. I think it would bring out some very useful factors.

You know, the navy yards take on all the tough, hard, dirty kinds of work, the nuclear overhauls, by and large, and the more sophisticated ships. We also have all the overhead that goes with that, trained work force, sophisticated management, strong technical control, and that kind of thing.

Senator STEVENS. That work force is going to go where the work is in the final analysis, even though we say they will not. And the private shipyards are always on my back, particularly in terms of the classified items, the way they are allocated to the public shipyards. They say that they are cleared for part of them; why can they not be cleared for all of them?

Admiral FOWLER. Well, that is not the issue, Senator.

Senator STEVENS. My feeling is, why not compete? I think in some ways we might be surprised. It might be that even with the proper allocation of cost to the public shipyards that the public

shipyards might be able to teach the private shipyards a little bit about economy.

Admiral FOWLER. I think we would both learn a lot.

Senator STEVENS. Yes.

Admiral FOWLER. There are 53 shipyards that I do business with, and they do a broad spectrum of things. That is 53 private shipyards that I do business with.

I am often driven by the small business statutes and rules. We would have to give some consideration as to how we kept the small business involved. Many of these yards are not able to or perhaps not willing to make investments of the kind that the large yards do, to put in the kind of facilities, to have the trained work force, to have the real competence that they need to handle some of the ships that we do in the naval shipyards.

I am very mindful of this situation. My responsibilities include oversight of the private yards, and I am attempting to drive our Naval shipyard work force down—it will happen over the next 2, 3 years—and to make a proper allocation to the private sector.

If we could run real honest competition, I think what makes the American system work is competition, I think we would come through very well.

LEGISLATION AFFECTING SHIP OVERHAUL PROGRAM

Senator STEVENS. You tell me what laws would have to be modified or changed in order to make it work. You are going from \$4.4 billion this year to \$5.5 billion in terms of your ship overhaul program, and I think as we go up—I assume we are going to keep the same relative proportion just arbitrarily between public and private. Are you? Is there going to be an allocation there between public and private as far as this increase?

Admiral FOWLER. It will be about the same as it has been in past years, generally speaking.

Senator STEVENS. Well, I would think that the Congress would listen very, very much to—the concepts of set-asides—this is not small business. I can understand where small business comes into effect, and I understand—

Admiral FOWLER. An awful lot of what I put into the private sector is small business, and there are many yards that want to stay small business. They are unwilling to put in the kind of commitment, to build themselves up, and do not want to be anything but small businesses.

Senator STEVENS. But that is not small business in the small business set-aside context.

Admiral FOWLER. Yes, sir.

Senator STEVENS. How do they get that? You are talking about, you know, several hundred million dollars.

Admiral FOWLER. But I am putting it out there in contracts on ships that are not that big. And a small business in the ship-repair industry is a contractor with 1,000 employees. Now, 1,000 employees can do quite a bit of work on a ship.

Senator STEVENS. Well, that is not a small business to me.

Admiral FOWLER. It may not be to you, and it is not to me, Senator.

Senator STEVENS. You know, I come from a State where the largest employer has 1,000 people.

Admiral FOWLER. It may not be to you and it is not to me, but that is the small business regulation. A couple of years ago I recommended that that number be reduced to 500, and it was not accepted.

Senator STEVENS. Send me a paper on it and we will take a look at that. If that is what is driving the costs, I think we have got to look at what is driving the costs as far as this program is concerned. And again, I think you are going to find the Congress, particularly those of us who want to make that 600-ship goal, willing to work with you to see to it that you have got the ability to do it.

Now, that does not mean we are going to make radical changes in labor laws and whatnot. But in terms of things of a set-aside for a person who has got a 1,000 employees, that is not small business. That is not under the intent of the original small business laws.

Mr. PYATT. We agree with you, Senator, and the Navy sent over to the Small Business administration the recommendation to reduce the size and it was rejected; 1,000 people is a big enterprise by anybody's standard.

And we welcome this opportunity to provide to you the changes that would be necessary to implement competition between the public and private sector in shipyards. I think it would be healthy for all involved.

Senator STEVENS. Good.

Mr. PYATT. There is a lot of work involved.

Admiral FOWLER. Senator, I do not want to leave you with the impression that that alone is driving the costs, but that is certainly one of the issues.

Senator STEVENS. I do not think it is driving the costs either, but I think the thing we have to do in the future is to drive the reduction in costs. I mean, we have to work in literally new savings in these programs if we are going to keep up the current rate of production.

Mr. PYATT. We have shown in other places that competition drives cost savings, and this is another place to try.

Senator STEVENS. I appreciate your help and we look forward to working with you.

SUBMITTED QUESTIONS

[The questions submitted by committee members will be inserted in the record at this point.]

ADDITIONAL COMMITTEE QUESTIONS

BATTLESHIP REACTIVATION

QUESTION: If the MISSOURI were to be fully funded through savings in FY 1984, the requested \$422.6 million could be cut from the FY 1985 request. Will this proposal be part of the upcoming budget amendment?

ANSWER: As you are aware a number of proposals are under consideration, one of which is to take the MISSOURI out of the FY 1985 budget and fully fund the reactivation in FY 1984. However, at this time no decision has been made regarding a budget amendment.

QUESTION: The Committee has received Navy's request to reprogram \$73.4 million to accelerate the MISSOURI reactivation. The FY 1984 appropriation provided \$57.7 million advance procurement with full funding expected in FY 1985. Why has the Navy elected to incrementally fund the reactivation between FY 1984 and 85 rather than fully fund the ship in either fiscal year?

ANSWER: There are two reasons that we decided to do this. The first is that it will get us the ship sooner and possibly save as much as \$13 million. The other reason is that it will help us in the Long Beach Naval Shipyard where we are faced with a reduction in force (RIF). This reprogramming could reduce the number of personnel scheduled for RIF at the shipyard.

QUESTION: By accelerating the reactivation, Navy plans to contain the industrial work to 18 months, instead of 21 at the same cost. Since the ship will enter the Long Beach Naval Shipyard at least three months earlier, isn't there some inflation savings from the early induction?

ANSWER: By accelerating the Missouri's schedule three months, delivering the ship in April 1986 vice July 1986, the Navy will achieve savings. By reprogramming \$73.4M of FY 1984 funds to the Battleship Missouri, the Navy may save up to \$5.0M. This will be achieved through inflation savings on the labor and purchased material at the shipyard. Where full funding is advanced to FY 1984, the Navy envisions a further savings of approximately \$8.0M, primarily in GFE due to inflation savings.

QUESTION: According to the Navy's data on the accelerated reactivation, there is no operational requirement for delivering the MISSOURI early, there are no savings for moving the ship out of the yard in 18 months instead of 21, and while a potential 231 shipyard personnel could be laid off without acceleration, all these shipyard workers would be rehired at Long Beach within four months under the existing schedule. Given these factors, why is it necessary to accelerate this program?

ANSWER: The recently reactivated NEW JERSEY's performance has strengthened the Department's resolve to obtain approval for all four IOWA class battleships. Acceleration of MISSOURI will enhance the Department's flexibility in the deployment of these capable ships and could reduce the number of personnel scheduled for reduction in force (RIF) at the shipyard. By reducing the number of shipyard workers scheduled for RIF, much of the turmoil associated

with a RIF, and then the rehiring, would be eliminated. In addition, as the Secretary of the Navy has stated in testimony, we could possibly save as much as \$13 million by accelerating the reactivation of the MISSOURI.

SSN ATTACK SUBMARINE

QUESTION: The requested \$617.8 million advance procurement supports four ships each in FY 1986 and FY 1987. How much advance procurement would be required to support a three ship program in each of these years?

ANSWER: \$391.4 million in advance procurement funding would be required in both FY 1986 and FY 1987 in order to support a three ship program. As stated earlier, an annual construction rate of three ships a year will not support a force level goal of 100 submarines.

CBO favors the alternative of holding construction to three SSN 688 ships per year and extending the service life of five older submarines currently planned for retirement. This plan would save about \$4.4 billion over the five-year plan.

QUESTION: Is this a viable alternative?

ANSWER: Each one of the 100 nuclear attack submarines required for the force of 1990 is necessary to meet the projected threat. The force level of 100 is needed to carry out the U.S. Navy's maritime strategy in the context of a balanced and affordable 600 ship Navy. One hundred is that number we consider essential to give a reasonable assurance that we could prevail in a conflict with the Soviets.

The authorization of four Improved 688 class submarines in 1985 would ensure that our force level goal of 100 SSNs would be achieved in 1990. Our warplan requires attainment of that level to counter the Soviet threat projected for the 1990s. Should only three attack submarines be authorized per year, a force level of only about 90 SSNs could be sustained. This level of 90 would be insufficient for execution of a national maritime strategy.

Extending the service life of older submarines would not be a viable alternative to 688 class ships. Our force of 100 nuclear attack submarines must also incorporate those warfighting capabilities to ensure a qualitative advantage is maintained over the highly capable attack submarines that the Soviet Union will put to sea in the future. The Improved 688 class submarines requested in FY 1985 are highly capable ships, much quieter and more heavily armed than earlier ships in this class. Moreover, the Improved 688 class will be equipped with a vastly superior combat system to enable them to prevail in undersea warfare.

In the year 1990, we will have over 50 attack submarines built prior to the introduction of the 688 class still in service. While these ships will be fully capable of opposing those submarines remaining in the Soviet fleet of 1960 and 1970 design, they will be only marginally capable of opposing those Soviet attack submarines which have been introduced since the mid-70s.

For this reason the Improved 688 new construction program is vital to our undersea superiority. Every Improved 688 class submarine that enters our fleet will give us a significantly improved capability of dealing with the Soviet submarine force of today and that projected for the immediate future. As our older submarines lose their advantage against the highly capable, modern

Soviet submarine designs, it is essential that we introduce submarines with the warfighting capability to prevail.

DDG 51 DESTROYERS

QUESTION: What would be the cost of a service life extension program for the DDG 37 destroyer class as a partial substitute for DDG 51 ship requirements?

ANSWER: The extension of service life of selected ships of the DDG 37 class is an issue currently under review. The cost and feasibility of extending their service life until replaced by DDG 51 class ships on a one-for-one basis is the specific point which is being addressed. Cost data for repair, refurbishment, replacement and updating of equipment for hull, ship and combat systems is now under review and should be available in May 1984.

If the current five year plan is pursued, by FY 1988 nearly half the planned shipbuilding program will consist of submarines and destroyers.

QUESTION: Admiral Walters, are you concerned that other surface ships and auxiliaries may be neglected by this strategy?

ANSWER: The five year plan which accompanies the President's FY 1985 is balanced in all areas to reflect the requirements in each ship mission community. I have complete confidence that the mix of ships reflects the needs of the Navy.

QUESTION: Last year Navy elected to design the ship "in-house" as a government effort and withdrew the contract design competition. This decision compressed the detail design and advance procurement lead times by about six months. In view of these developments, is December 1984 still a realistic ship contract award date?

ANSWER: Yes. Contract design will be completed in June 1984. This leads naturally to a December 1984 detail design and construction award without schedule compression. Detail design and construction is somewhat compressed but several shipbuilders state a December 1984 award with a July 1989 commissioning is clearly adequate.

FY 1985 SHIP MAINTENANCE AND MODERNIZATION PROGRAM

QUESTION: Admiral Nunneley, the ship overhaul program is budgeted to increase from \$4.4 billion to \$5.5 billion in fiscal year 1985. Please highlight some of the reasons for this increase.

ANSWER: Some of the reasons for the increase are:

- The FY 1985 program funds a total of 56 overhauls as opposed to 54 in FY 1984.

- Ten nuclear ships were programmed for overhaul in FY 1984 while fifteen are scheduled in the FY 1985 program.

- Modernization efforts have traditionally been concentrated on ships at mid-life. Today, substantial modernization resources go to newer ships which are receiving major combat systems after delivery to take advantage of quantum leaps in state-of-the-art technological advancements. For example, the DD 963 ships receive LAMPS III, OUTBOARD, Anti-missile defense, TOMAHAWK, Close-in Weapons System and Target Acquisition systems. The larger alteration packages on relatively new ships account for a significant portion of the increase.

Another less visible reason for the increase is that, in addition to pay raises (3.5%) and material inflation (average inflation of 4.8%), the Office of the Secretary of Defense approved a 9.6% increase in cost based upon the following factors:

- Asset Capitalization Program (+2.7%). This amount represents an increase in capital equipment purchases for Navy shipyards from \$67.8 million in FY 1984 to \$162.0 million in FY 1985, which is 4% of revenue. The goal is to achieve approximately 5% of revenue by FY 1987, a factor based upon practice in the private industry.

- Payback Factor (+5.1%). This increase is to recoup net shipyard losses from FY 1983.

- Shipyard Overhead (+1.8%). This increase is comprised of:

- Nuclear Engineering and RADCON improvements.
- Reduction to current backlog of non-deferrable maintenance.
- Reduction to current backlog of major non-recurring maintenance.
- Modernization of shipyard training.
- Medicare.
- Development of technical repair standards.
- Increased shipyard security.

AIRCRAFT CARRIER SERVICE LIFE EXTENSION PROGRAM

QUESTION: The FY 1985 request includes \$181.3 million as the first advance procurement increment to begin the \$1 billion aircraft carrier KITTY HAWK service life extension in FY 1987.

Is there a two year long lead requirement for material which accounts for nearly 20 percent of the total cost estimate?

ANSWER: Yes. To ensure efficient production planning and execution, we procure material so that it will be available at the start of the SLEP availability. Major equipments and many materials have lead times of between 24 and 30 months. Any items with longer than 21 months production lead time must be under contract during FY 1985 to meet the SLEP start date for USS KITTY HAWK. The catapult wet steam accumulators, main engine turbines and rotors and the AN/SPS 48E radar are some examples of the types of items with very long lead times which will be purchased during FY 1985.

QUESTION: Admiral Fowler, two years ago in your testimony before the Committee you requested approval of a reprogramming for additional modifications to the USS SARATOGA, the first carrier to undergo the extension program, which effectively broke the Congressional ceiling of \$535 million on the program. Subsequent approval of the request was not to be construed as a precedent. However, SARATOGA left the Philadelphia shipyard nearly a year ago, but has since returned for a \$22 million, three month boiler repair.

Do you consider this additional work to be part of the revised cost estimate ceiling?

ANSWER: The additional work done on USS SARATOGA boilers was charged to the Philadelphia Naval Shipyard's overhead accounts, and is not considered part of the revised cost estimate ceiling. No additional funds will be requested for that work.

QUESTION: Is the competence of the Philadelphia shipyard sufficiently in question to warrant a reconsideration of further carrier work assigned to the yard?

ANSWER: Even though some specific work practices and methodology were questioned, the overall competence and capability of Philadelphia Naval Shipyard were never an issue. Several Navy reviews and audits have been conducted over the last eighteen months on the performance of work by Philadelphia Naval Shipyard. Evaluation of work extended well beyond that associated with USS SARATOGA and USS FORRESTAL (currently in the shipyard) SLEP'S. The audit teams have been composed of leading experts in various technical disciplines, as well as in quality assurance. NAVSEA headquarters personnel, top level representatives from other shipyards, and other NAVSEA field activities have also participated. The results of these audits identified some areas of deficiency for which corrective action has been initiated. Where necessary, work specifications and plans have been improved to alleviate specific problem areas for USS FORRESTAL and future SLEP ships. Philadelphia Naval Shipyard has taken special measures to improve quality. Some of these initiatives include headquarters and field activity assistance. The effect of these measures extends beyond SLEP to include all ship repair at Philadelphia. It should be noted that, with the exception of the boiler rework, the USS SARATOGA SLEP was highly successful. The ship conducted all post-SLEP shakedown events and system certifications as scheduled, including two underway trials where full power operations were conducted. The pre-deployment work ups were extremely successful and USS SARATOGA is currently deployed. Current work on FORRESTAL is proceeding in a satisfactory manner. Based on current performance and experience levels, Philadelphia is judged to be fully capable of continued work on carriers.

QUESTION: Have modifications been made to the work packages of succeeding carrier service life extensions to prevent a recurrence of this problem?

ANSWER: Yes and as specifically concerns a problem with USS SARATOGA boilers, the Navy conducted intensive reviews to determine the causes of the deficiencies and has taken strong measures to ensure those problems are not repeated. The unique welding process Philadelphia Naval Shipyard employed in USS SARATOGA is no longer being used pending extensive evaluation and potential modification prior to again being approved for use. This specific "lesson learned", all others which evolved during the execution of USS SARATOGA SLEP, and those resulting from related audits and reviews have been incorporated in the work packages developed for follow ships.

QUESTION: In view of the problems, do (you) recommend any changes to the quality assurance program at the Philadelphia Naval Shipyard?

ANSWER: One of the priority areas explored during the many audits of Philadelphia Naval Shipyard's work practices has been quality assurance. Corrective action and program improvements have been instituted. Top shipyard management have taken steps to strengthen the quality assurance organization and practices, utilizing the audit results to direct the improvement program. NAVSEA headquarters has and will continue to monitor Philadelphia Naval Shipyard performance in this area to ensure the shipyard

maintains a viable quality assurance program reflected in the work completed on assigned ships.

TAO FLEET OILERS

QUESTION: This Committee recommended, and the Congress agreed, that savings from the FY 83 TAO Program be applied to design a AO-177 class oiler modification to expand fuel capacity from 120,000 to 180,000 barrels. However, the Navy doesn't plan to modify these ships until FY 88. Does it take five years to design the modification?

ANSWER: Navy has adopted the Committee's recommendation to begin design work on the AO-177 Class modification to increase fuel capacity from 120K to 180K Barrels. It does not take five years to design the modification. The Committee's direction was provided in FY-84. Design work will be complete in FY-86 to support pre-fabrication of the plug in FY-87, and ship conversion in FY-88. A complete lead ship program profile will be provided in Navy's report to Congressman Bennett.

QUESTION: Admiral Walters, your statement asserts that the TAO new construction program is urgently needed to redress oiler shortfalls and replace the aging fleet of tankers. If this is true, why doesn't the Navy expand the capacity of the AO-177 class ships earlier than FY 88?

ANSWER: The timing of AO-177 jumboization is a function of force levels. Navy cannot take these ships off line until sufficient TAO-187 deliveries occur to offset the operational loss of the AO-177's while they are being converted. Navy will also schedule the conversions to coincide with normally scheduled periodic maintenance availabilities to accomplish concurrent conversion and repair work, following plug prefabrication. This plan will minimize a loss of the ship to the Fleet. FY-88 represents the earliest opportunity to perform the actual conversion without impacting fleet scheduling.

QUESTION: A GAO analysis of the Navy's fleet oiler requirement determined that the need for TAO ships is overstated by two ships. Why not cut the FY 85 TAO construction rate from three to two and accelerate the AO-177 class modification?

ANSWER: Funding of the TAO 187 Programs in the President's FY-85 FYDP is critical to the funding of the AO-177 Class conversion. Navy cannot remove the AO-177 Class from service for conversion prior to the attainment of the force level required to support the existing CV inventory. The 3 FY-85 TAO-187's would begin to deliver in FY-88 and provide the one for one relief required.

TAK MISSILE CARGO SHIP

QUESTION: The FY 1985 request includes \$91.1 million to convert a ready reserve ship to a cargo ship configuration for resupply of the ballistic missile submarine tenders. The newest ship converted in FY 1983 cost \$65 million.

Since the conversion work packages are virtually identical, why does the second conversion cost 50 percent more than the first?

ANSWER: The differential in end cost between the two ships is approximately \$26.0 million. Of this amount \$13.8 million can be

attributed to inflation. The requirement for the remaining \$12.2 million is based on the known condition of the candidate ship and an estimate of the additional repairs/replacement of equipment which must be accomplished.

With the deployment of the longer range TRIDENT ships, the need to resupply the forward based sub tenders diminishes.

QUESTION: Why is the Navy converting a second resupply ship at the same time the mission is tapering off?

ANSWER: The Navy has a strategic requirement for two resupply ships (T-AKs) at least until the mid-1990s to support the POSEIDON submarine squadrons at Holy Loch, Scotland and Kings Bay, Georgia. We presently have two operational T-AKs, the recently converted (FY 1981) ship VEGA, and USNS Marshfield, a converted World War II Victory ship built in 1945. We plan to convert a cargo ship in FY 1985 to serve as a replacement for USNS Marshfield, which is in need of replacement as soon as possible. The VEGA is planned for retirement in the mid-1990's, and the second T-AK would be retired about 1998.

It should be noted that our TRIDENT submarines will not be supported by T-AKs or submarine tenders, but will receive all their support from TRIDENT submarine bases at Bangor, Washington and Kings Bay, Georgia.

MARITIME POLICY

QUESTION: The Navy's mobilization strategy for sealift relies heavily on the privately-owned U.S. flag merchant fleet. Mr. Secretary, would you comment on the differences between U.S. and Soviet merchant fleet capacities?

ANSWER: As of 1 Jan 1984, the USSR merchant fleet ranks 8th by DWT and 5th by number of ships. In comparison, the U.S. active merchant fleet ranks 7th by DWT and 11th by number of ships. By type ships (1,000 Gross Tons and upward) U.S. active merchant fleet compares with the Soviet merchant fleet as follows:

Type Ship	U.S. Active (Militarily Useful)	USSR
	Number/DWT	Number/DWT
Cargo	[Deleted]	[Deleted]
Tanker	[Deleted]	[Deleted]

The United States also has 213 ships (2.3 million DWT) in a reserve fleet. The USSR does not have a reserve fleet.

QUESTION: Over the last few years the Navy has expanded the Ready Reserve Fleet to about 70 ships. With the decline in the active merchant fleet, do you believe that an expansion of the Ready Reserve Fleet is required for sealift contingencies?

ANSWER: Although it is impossible to make accurate long range projections, there are some basic principles that must be observed. First, Navy will continue to ensure that adequate sealift is available to meet defense requirements. Second, total amount of sealift that is available for defense purposes is the sum of the three following sources of sealift: the controlled Fleet of the Military Sealift Command, the Ready Reserve Force, and militarily useful ships of the U.S. merchant marine. A loss of cargo capacity in any of these three sources must be offset by an increase in one of the other two ship sources or else total lift capability declines. Unless something happens to arrest the precipitous decline of the U.S. merchant marine, an expansion of the Ready Reserve Force is inevitable.

QUESTION: The pool of qualified merchant mariners is declining as the active merchant fleet shrinks. Given this condition, do you foresee problems in attracting sufficient numbers of trained personnel to fill Navy sealift requirements in a wartime condition?

ANSWER: Manning is not a problem for the Ready Reserve Force or for crewing about the first half of ships activated from the National Defense Reserve Fleet. If it became necessary to activate the entire NDRF to meet defense or economic shipping requirements, then crewing of the later breakout of the Victory ships would present a problem. However, the engineering plant in these ships is relatively simple and initiation of a training and indoctrination program at the start of a contingency would ensure adequate manpower.

QUESTION: What is the size of the shortfall of militarily useful product tankers for national security sealift requirements?

ANSWER: Changes ongoing in the world-wide petroleum distribution system are causing the loss from commercial use of many smaller product tankers which historically DOD has employed in the distribution of military fuels for national defense. Accordingly, as a follow-on effort to the DOD Sealift Study, DOD is conducting an assessment of our capability to meet FY 88 national defense petroleum distribution requirements with the resources that are forecasted to be available at that time. Shortfalls identified from this assessment will be reflected in changes to the Navy's Strategic Sealift Program.

QUESTION: The Falkland Islands crisis taught the British that usage rates for supplies and war reserve materials exceeded all planning assumptions. Has this experience inspired a reexamination of sealift needs?

ANSWER: The Falkland Islands crisis demonstrated the use of merchant shipping in sustaining military operations at great distances from supply points of origin. In addition to the high usage rates for supplies and war reserve materials, the extended lines of communications required two thirds of the committed shipping to be employed in a resupply role. The Navy's Strategic Sealift Program is based on sealift requirements as stated in the DOD sealift study. This study similarly employed extended lines of communications and usage rates as stated by individual services. These requirements for sealift far exceed the experience of the British in the Falkland Islands crisis.

QUESTION: The shipbuilding request includes \$31 million for the purchase of U.S. flag vessels for the ready reserve fleet. Do you consider this funding level adequate to keep up with the estimated requirement.

ANSWER: Yes, based on the current level of acquisitions planned over the Five Year Defense Plan before Congress, the funding requested is adequate.

NEW DESIGN SSN

Funding for the New Design SSN is spread across six separate R&D program lines totaling \$174.3 million. The Navy program supports an FY 1989 authorization for the lead submarine of this class of attack SSNs.

QUESTION: What is the requirement for an FY 1989 authorization for the lead New Design SSN?

ANSWER: [Deleted].

The development of the threat posed by the Soviet submarine force has expanded dramatically over the last few years. [Deleted].

In order to deploy a new SSN with characteristics which would meet the Soviet threat well into the 21st century, present R&D efforts are required to develop essential systems. [Deleted]
[deleted.] This is the earliest that the R&D effort will support the authorization for a lead ship.

Last year this committee directed the Navy to report back to it on the projected force mix of the New Designs to 688 class submarines. It also was concerned that the Navy had not analyzed how improvements to 688 class submarines may best utilize new design SSN technology.

QUESTION: What is the status of this report? How does the current Navy New Design SSN acquisition strategy support the goal of maintaining a 100-level attack submarine fleet?

ANSWER: A report on attack submarine force mix has been completed. The projected force mix supports an enriched, affordable force of 100 SSNs by 1990.

Achievement of the 100 SSN force is based on SCN acquisition programs for:

[Deleted].

QUESTION: Will 100 attack submarines be sufficient, given the large Soviet investment in this area?

ANSWER: The 100 SSN attack submarine force is based on careful analysis and projection of the Soviet Navy threat in the context of a balanced and affordable 600 ship Navy. We must achieve this goal of 100 SSNs in order to have sufficient tactical superiority to execute our warplan for the projected threat of the 1990s.

QUESTION: Have you considered a lower mix of New Design SSNs with more 688 class submarines through the year 2000?

ANSWER: Detailed analysis of the projected threat of the 1990s and beyond shows that significant force enrichment is necessary to maintain U.S. undersea superiority. There is no growth margin remaining in the 688 class beyond the Improved 688. The New Design SSN is needed to inject the step improvements required in light of the Soviet's numerical advantage and massive construction program. The numbers mismatch (3:1) must be overcome by our tactical superiority. A force mix lower than that evolving from the new design SSN construction program will not give us a sufficiently enriched attack submarine force to maintain our undersea superiority.

The New Design SSN is to be far superior to Improved 688s. It will have superior firepower, quieting, speed, and depth.

QUESTION: What is the projected R&D cost of the program? Are you confident that the major technology advancements you are seeking in New Design will be available for an FY 1989 authorization of the lead sub of the class? When do you ask for long lead SCN funding?

ANSWER: The projected R&D cost of the New Design SSN program is estimated at \$1.1 billion. The Navy specifically chose FY 1989

for authorization of a lead SSN of the New Design class. This date was selected by the developmental design group (Group TANGO) after a year of deliberation. This selection balanced the operational need of earliest lead ship authorization with the need to achieve maturity in all supporting R&D programs. These essential technical programs can be brought to the proper level of development to support FY 1989 lead ship authorization.

The Navy will request long lead SCN funding for the New Design SSN in FY 1987.

QUESTION: Has the issue of what steel is to be used been resolved?

ANSWER: HY 100 steel has been selected for the New Design SSN. The ship design incorporates a pressure hull structure, major components, and sea water systems with the capability of achieving greater operating depth by using HY 130 steel.

QUESTION: Will New Design be optimized for an Arctic warfare capability?

ANSWER: The New Design SSN will be fully optimized for Arctic warfare capability. This Arctic suit will include:

- o full ice hardening
- o retractable bow-planes
- o improved under-ice navigation
- o improved under-ice sonar

QUESTION: How many New Design SSNs will be procured? At what unit cost?

ANSWER: The total number of ships to be procured is not yet determined. Lead ship cost will be \$1.6 billion. Follow-on ships starting with the fifth ship will be \$1.0 billion.

This has the potential for being a 20-year, \$100 billion acquisition program.

QUESTION: Aren't you at all concerned that you are moving out too fast on the program?

ANSWER: The number of New Design SSNs to be built is not yet determined. However, the acquisition program is likely to be much less than \$100 billion.

The developmental design group (Group TANGO) specifically selected FY 1989 for authorization of the lead ship. This selection was made after a year of deliberation, considering surveys of all related R&D programs and the ability of submarine building yards to compete in the preliminary design process. FY 1989 was a balance of the operational need of earliest lead ship authorization with the need to achieve maturity in supporting R&D programs. The R&D effort will support funding of the lead ship in FY 1989 and that is the proper time to start the New Design SSN construction program.

Considerable time is required to bring a new SSN from conceptual design to fleet introduction. We must move steadily through our well established development program to the FY 1989 start date for the New Design SSN. Dramatic improvements in Soviet submarine quieting, sensors, and firepower, determinants of supremacy in undersea warfare, make it imperative that we act now to meet this soundly conceived FY 1989 start date for the New Design SSN.

QUESTION: What would be the impact to the program if we

reduced the \$174.3 million budget request by \$50 million? By \$75 million?

ANSWER: The \$174 million requested in the FY 1985 budget for New Design SSN R&D is targeted at bringing developments in six program elements to maturity by FY 1989 to support lead ship construction.

A reduction of \$50 million would stop or retard development in at least one program element which is essential to meeting a FY 1989 lead ship start. Start of the lead ship would be delayed at least one year because of uncompleted development in submarine silencing and tactical systems. The U.S. Navy would fall behind in reaching a force level goal of 100 SSNs.

A reduction of \$75 million would stop or retard development in at least two program elements vital to the New Design SSN. Such a reduction would have even more of a retarding effect on putting a lead ship in operation by 1995, setting back development even further.

DDG-51 R&D PROGRAM

QUESTION: The DDG-51 is in its fourth year of development, and the RFP has been released earlier this month.

How much R&D is left on the DDG-51?

ANSWER: The RDT&E Budget estimates which will complete ARLEIGH BURKE flight one (DDG-51-58) R&D efforts include the completion of system engineering at the Combat System Engineering Development (CSED) site RCA Moorestown as well as DT/OT for follow ship production decision. Also included are RDT&E planning estimates for Flight II combat system upgrades. These estimates are being refined as we see more clearly the threat driven requirements for system improvements.

		(\$inM)		
FY-85	FY-86	FY-87	FY-88	FY-89
124.6	129.7	132.6	140.0	139.1

QUESTION: Isn't it at least a year early to be asking for SCN funds for the DDG-51?

ANSWER: The DDG-51 design is far more mature at this point in the acquisition cycle than any ship the Navy has ever built. Long lead funding was provided in FY 1984 and we are fully prepared to proceed with construction in the FY 1985 program.

QUESTION: Have any substantive changes been made to the DDG-51 anti-air, ASW or combat system programs since last year?

ANSWER: LAMPS III electronics has been added. No other significant changes have been made.

QUESTION: When will ship detail design be completed?

ANSWER: Detail design will continue throughout construction until delivery in 1989.

QUESTION: Haven't you really just started the engineering development of the DDG-51 combat system?

ANSWER: No. Combat system engineering development began in

July 1981. In FY 85/86, R&D primary emphasis shifts from engineering development to integration and test.

QUESTION: Why is the displacement of the ship going up? Last year we were told it would be less than 8200 tons; now it will be less than 8500 tons?

ANSWER: DDG-51 displacement will be less than 8300 tons. Cost vs weight trade-offs have occurred without significant impact on full load displacement.

QUESTION: Hasn't the DDG-51 lost speed due to this weight increase?

ANSWER: A 100 ton displacement increase decreases ships speed by .1 knots.

QUESTION: Will the DDG-51 be less manpower intensive than the CG-47 ships it replaces?

ANSWER: DDG-51 will not replace CG-47 ships. DDG-51 is far less manpower intensive and far more capable than ships she will replace, the DDG-2 and DDG-37 classes. Manning for DDG-51 in comparison to CG-47 is at least 40 less people.

QUESTION: What will be the total manpower savings per year when these ships are replaced by the DDG-51?

ANSWER: The total manpower savings are as follows:

- BA per class
 - o DDG-2 21 Officers/340 Enlisted
 - o DDG-37 25 Officers/378 Enlisted
 - o DDG-51 22 Officers/280 Enlisted
- Total billet cost per year:
 - o DDG-2/37 = 9068 Enlisted
645 Officers
 - o DDG-51 = 8120 Enlisted
638 Officers
- Per year savings once 29 DDG-51's are in commission is:
 - o 7 Officers/948 Enlisted

QUESTION: Have you considered a higher rate of production for DDG-51s, and a faster phase-out of the CG 47-s?

ANSWER: The CG 47 and DDG 51 procurement profile in the President's FY-1985 budget reflects the force level and force mix required for a 15 Carrier Battle Group, 600 ship Navy. Twenty-seven CG 47 class cruisers and twenty-nine ARLEIGH BURKE destroyers will ultimately be required in the 600 ship Navy.

QUESTION: Will the DDG-51 now incorporate the RACER (Rankin Cycle Energy Recovery) system to recover heat from LM 2500 exhaust gases, and use them to generate steam?

ANSWER: It is not planned to install RACER in DDG-51 because RACER will not complete development and testing in time to be installed in DDG-51.

SHIP CONTRACT DESIGN

QUESTION: The Navy is requesting \$101.3 million for ship contract design funding engineering development of selected ship systems and subsystems, an increase of \$23.3 million over last year.

Why is the increase necessary?

ANSWER: Last year the Navy requested \$110.2 million for this effort, and thus \$101.3 million is a decrease from the previous request. Contract Design and Subsystem Development funding requested is a function of the effort required to execute current and future shipbuilding plans. This effort is prerequisite to, and precedes through the two or three year period immediately prior to the authorization year of the ship in the SCN plan. Last year the request was reduced by \$30.2 million in the Authorization process. In order to execute FY 1985 and succeeding years' SCN plans, a \$23 million reprogramming is being requested in FY 1984.

QUESTION: The descriptive summary for the FY 1985 program states that it will be necessary to reprogram funds into this program in FY 1984.

Why is that necessary, and when will the reprogramming be sent to Congress?

ANSWER: The reprogramming will be necessary in order to execute the FY 1985 and succeeding years' SCN plans. This was made necessary by a \$30.2 million cut in the Authorization process last year. It is estimated that a request for a \$23 million reprogramming will be forwarded from OSD to Congress during the week of 23 April.

MK 92 FIRE CONTROL SYSTEM ON FFG-7s

QUESTION: What is the requirement for deploying the Mark 92 Fire Control System Phase III upgrade on FFG-7s?

ANSWER: Navy is complying with Congressional direction in developing the Mark 92 Fire Control System Phase III upgrade. No requirement exists for deploying the MK 92 Fire Control System x-band four-faced phased array radar Phase III upgrade on FFG-7s.

QUESTION: Has the development program fallen behind? Will reprogramming of funds be required to maintain installation options on future ships?

ANSWER: The Phase III upgrade will use the Phase II upgrade as its baseline. The Phase II upgrade development program is 6 months behind schedule. This delay signals a possible slip in the Phase III upgrade development program. In order to execute the Phase III upgrade development program additional RDT&E funding beyond that provided in the FY 85 budget is required.

QUESTION: Are you considering rescinding a portion of FY 1984 SCN funds for the FFG-7, and reprogramming the balance into the Phase III upgrade program?

ANSWER: The 1984 Appropriations Act added an FFG with the MK 92 Fire Control System Phase III upgrade. Appropriations in all fiscal years for this project totaled \$340 million including \$40 million for the phased array radar procurement in FY 1983, \$183.6 million transferred from prior year funds and \$116.4 million new appropriations. In an attempt to execute the program

legislated by Congress, Navy requested two shipbuilders to provide cost estimates for the ship with the new radar system as contractor furnished equipment. We pursued this unusual approach in order to remove any bias which might be attributed to Navy. The price of this ship, on a fixed price incentive fee basis, would be \$473 million or \$133 million above the funds appropriated. Clearly, the direction of the Congress is not executable with the funds appropriated for the purpose. Further, this differential raises the wisdom of continuing to pursue the project as a backfit for the existing FFG ships because it portends approximately a \$70 million per ship backfit program which, given current budget constraints, is very unlikely to be affordable.

Navy believes the radar capabilities of the FFG-7 class ships should be improved using transmitter and receiver modifications now in development (Phase II). A good way to proceed with an orderly development and installation plan would be to install this equipment (Phase II) on the FY 1984 FFG as a prototype for eventual backfit in the other ships. This ship would cost \$376 million, of which \$340 million has been appropriated. Navy is prepared to submit a reprogramming request for the remaining funds should this be an acceptable approach.

QUESTION: Does the Phase III upgrade support the SM-2 missile?

ANSWER: Navy does not have any plans to install the SM-2 missile in FFG-7s. Any such program would have significant additional RDT&E and procurement costs associated with it. The Phase III upgrade would [deleted.] Both the Phase II and Phase III upgrades conceptually support the [deleted.]

QUESTION: Does the Navy still contend that the Phase II program meets its requirements?

ANSWER: Yes. [Deleted].

QUESTION: Should this program be terminated?

ANSWER: Navy position is that the MK 92 Fire Control System Phase III upgrade may not result in an increased military capability commensurate with its projected cost.

QUESTION: Would deployment of this system on an FY 1983 FFG-7 prior to system testing be counter to DoD and Navy acquisition policy?

ANSWER: Yes. Deployment of a Phase III upgraded system on an FY 1983 or FY 1984 FFG-7 is counter to DoD and Navy acquisition policy and would also not be consistent with recent Congressional direction regarding operational testing of equipment prior to installation.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

NIMITZ CLASS NUCLEAR CARRIERS

QUESTION: Please describe the current status of the two NIMITZ-Class nuclear carriers authorized and appropriated in FY 83.

ANSWER: Construction of CVN-72 and CVN 73 is proceeding ahead of schedule, with manning levels of over 1800 men per day. CVN 72 keel laying is now programmed for the fall. The

shipbuilder has made nearly five thousand contractual commitments for material with hundreds of subcontractors in more than forty states. This includes most of the major equipment items such as main turbines and gears, weapons elevators and aircraft hoisting equipment, switchboards, and main condensers, for example. In fact, forty thousand tons of steel have already been received for fabrication. For CVN 72, this has resulted in five innerbottom steel sections already on final assembly and fourteen units have been structurally completed and are being blasted, painted and outfitted.

Government contracts for government furnished equipment have also been awarded in great numbers to contractors throughout the United States. Contracts totalling \$1.5 billion dollars had been awarded by the end Feb 1984.

QUESTION: If a decision should be made now to terminate these two carriers, what would be the cost to the government?

ANSWER: The contracts for these vital defense assets reflect a substantial savings from what the costs would have been if bought separately or at increased construction intervals. The key to achieving those savings was prompt award of the construction contract and supporting government furnished equipment contracts so that multiple unit purchases could be made which would have economic and efficient interface with the contract construction schedule for CVN 71.

As a result, construction progress for CVN 71 has been sustained at a rate which supports shipbuilder plans to achieve, or even beat the December 1986 delivery date targeted in a December 1981 incentive modification to the contract. Termination of either of the FY 1983 aircraft carriers would not merely cause loss of opportunity to save millions of dollars on CVN 71, but could easily result in stretch-out of the delivery of CVN 71 and probable increases in construction costs. Under the contract incentive share terms, eighty-five percent of any costs for CVN 71 beyond the target cost would be paid by the government.

It is impossible to precisely calculate what cancellation costs would be if the contract for two aircraft carriers were terminated at this point. The \$3.1 billion contract contains standard Defense Acquisition Regulations (DAR) provisions for cancellation for the convenience of the government. The resulting liabilities would be enormous, however. The shipbuilder has made nearly five thousand contractual commitments for material with hundreds of subcontracts in more than forty states.

Consequently, any decision to terminate the contract would result in years of complex and costly negotiations affecting the shipbuilding industry and supporting industries throughout the nation. Moreover, ensuing claims and counter claims would probably continue for further years as the results and decisions would be litigated.

Government contracts for government furnished equipment have also been awarded to contractors throughout the United States. Each of these contracts has provisions for termination for the convenience of the government, but such action would have extended ramifications and litigation as termination settlements would be sought with many different contractors.

Several supporting participating managers provide the contracting services for procurement of government furnished materials for this program. In many instances, contracts were

awarded which took best advantage of combination with other purchases. Therefore, the impact of large scale termination of contracts would have an effect on other programs and support requirements beyond the extent of the carrier program alone.

Most contractors for both GFE and CFE subcontract a substantial portion of the effort, and procure materials required for production of the items to be supplied. Each contractor in turn would be faced with cumbersome and expensive termination of contracts, producing a ripple effect of devastating proportions.

Another significant consequence of so extreme a decision would be the effect on business relationships between the shipbuilding industry and the Navy, and by extension, between all of industry and the government.

The amount and extent of the aggregate termination costs and liabilities is far greater now than a year ago, since substantial amounts of contractual obligations and commitments are in place and the tiers of companies involved have successively incurred costs which could not be recovered. It is reasonable to expect that those unrecoverable costs and risks which would be assumed by the government would easily exceed the cost of one of the carriers, in addition to the costs of the permanent damage to the credibility of government procurements.

To summarize, costs resulting from partial or total cancellation of the two ship aircraft carrier contract would potentially reach the full cost of one of the carriers, as an aggregate of the following costs:

- Loss of multiple ship purchase savings
- Loss of construction savings by the shipbuilder
- Increased costs for less efficient and longer construction period and delayed delivery of CVN 71
- Unrecoverable costs of subcontracted materials and services purchased by the shipbuilder
- Sum of individual termination costs for the hundreds of government contracts for GFE
- Litigation and claims costs and liabilities of unestimable proportion
- Delay in attainment of the national goal of a 600 ship Navy.
- Loss of unrecoverable costs incurred for goals in support of and parallel to the 600 ship Navy objective.

QUESTION: If a decision should be made in late January of 1985 to terminate these carriers, what is your estimate of the cost to the government of a termination at that time?

ANSWER: By January 1985 the keel laying will have occurred on the CVN 72 and the shipbuilder will be proceeding to construct large sections of the ship. Also, more government furnished equipment will have been procured. Therefore, the cost to the government to terminate will be much higher than it would presently cost. The aggregate cost would most likely exceed the cost to build one of these ships based on the summary of costs provided in response to the previous question.

FIFTEEN CARRIER BATTLE GROUP

QUESTION: What percentage of the DDG-51 production run is justified based upon a requirement to form part of the carrier battle groups for the new NIMITZ class vessels, the USS WASHINGTON and the USS LINCOLN?

ANSWER: Navy does not build surface combatants for specific battle groups. Our overall requirements are driven not only by carriers but surface action groups, amphibious groups, underway replenishment groups and convoys. Even with construction the entire 29 DDG-51 class ships which we envision, Navy will be required to extend CG-16 and CG-26 class cruisers and selected DDG-37 class guided missile destroyers beyond their normal 30 year service life in order to sustain required numbers of surface combatants.

QUESTION: If the Navy were to be scaled back to thirteen carrier battle groups through the retirement of the USS CORAL SEA and the USS MIDWAY when the WASHINGTON and LINCOLN become operational, how would this affect the requirement for DDG-51's?

ANSWER: As noted above, a reduction to thirteen carrier battle groups would have no impact on the requirement for 29 DDG-51 class ships.

NAVY ATM COUNTER

QUESTION: Given the effectiveness of the multi-layered carrier battle group defenses against air attack, either by aircraft or by cruise missiles, and the apparent surplus of Soviet warheads on ballistic missiles from SS-20's to SS-23's to ICBM's, if the Soviet Union should decide to employ nuclear weapons in a confrontation at sea, do you believe they would utilize ballistic systems against which the carrier battle group is defenseless, or air breathing systems?

ANSWER: They would use air breathing, anti-ship cruise missiles launched by Soviet ships, submarines and aircraft. [Deleted]

[deleted.] However, our strategy to counter a potential tactical ballistic missile attack from land on naval forces at sea is many pronged. First and foremost, we take advantage of our inherent mobility and dispersion to make such a tactic very unproductive. Unfortunately, there seems to be a commonly held misconception that our CVBG's steam around in tight World War II formations covering only about 300 square miles. Today, our nominal CVBG disposition covers 56,000 square miles - an area equivalent to the entire central front of Europe. But, were the Soviets to attempt such a strategy, we are still prepared to deny them success. In this connection, we must continue to control the information war to deny the Soviets quality surveillance and targeting information critical to either ballistic or cruise missile delivery. We feel we can do this well today. We must also continue our initiatives to reduce fleet susceptibility to nuclear weapons effects; and we must define the technologies necessary to a systems approach to counter the threat and develop those technologies.

Our strategy to counter critical Soviet command and control nodes necessary to Soviet targeting capitalizes on the inherent advantages of mobile fleet units against a ballistic missile system. We routinely exercise in tactics which degrade Soviet surveillance and targeting critical to IRBM and ICBM targeting. Our initiatives to harden the fleet against nuclear weapons effects were realized with CG-47 class cruisers designed to withstand a three pounds per square inch overpressure, making them more survivable. The DDG-51 class furthers this to seven pounds per square inch overpressure and includes a Collective Protective System. We have redirected

fleet survivability efforts to include nuclear weapons effects hardening in the design of both new and upgraded combat systems, ships and aircraft. In the near term, the combination of degraded Soviet surveillance, targeting, and improved fleet survivability against nuclear weapons effects makes it significantly more difficult to employ IRBM's and ICBM's against the fleet.

For the future, we are reviewing the technologies required to counter the threat. The AEGIS combat system is capable of tracking targets the size of ballistic missile reentry vehicles and could be modified to track these high altitude threats. Our assessments indicate modifications to SM-2(N) trajectory and fuzing could provide a limited kill capability against the ballistic missile threat. We are participating with the Army in the Joint Anti-Tactical Missile Study intended to define the technology direction to meet the threat and have funded the AEGIS Anti-Tactical Missile technology development in POM-86.

QUESTION: What priority has the Navy placed on developing defenses against ballistic missiles delivering nuclear warheads in a barrage attack against carrier battle groups at sea?

ANSWER: No ballistic missile system is currently recognized whose primary mission is the destruction of ships in the open ocean. An OPNAV sponsored study was conducted in September 1981 and concluded that (d). Ballistic missiles represent a potential threat to naval forces if the weapon's delivery system is reasonably precise and if timely ship location data is available. In the 1970-1973 time period the SS-N-13 missile was developed specifically for use against naval forces and, although it reached the advanced stage of development, it was apparently never deployed on Soviet combatants and no follow-on system has been identified. The Navy has maintained an interest in Anti-Tactical Ballistic Missile defense and keeps abreast of recent developments through participation in the joint Army/Navy Anti-Tactical Missile (ATM) program.

QUESTION: What role would the radars aboard the CG 47's and DDG 51's play in such a defense?

ANSWER: With modifications to cueing and tracking gates, the AEGIS Weapon System could provide detection, tracking, generation of fire control solutions, and support a missile engagement of incoming ballistic missiles. [Deleted].

The AEGIS Weapon System can provide a near term defense for naval forces against the ballistic missile threat. The AEGIS Weapon System, unlike all other U.S. Navy AAW systems, provides horizon to zenith coverage and is the only system capable of supporting an ATM program.

QUESTION: What is the Navy's current view of shipboard directed energy weapons in a ballistic missile role?

ANSWER: The Navy has a continuing and strong interest in the potential future use of directed energy weapons in the naval environment. Development by Navy of the MIRACL High Energy Laser (HEL), now located at the White Sands National Laser Test Range, is one example of a high priority program in this area.

The Navy is presently funding a study to examine the utility of the HEL in various naval applications, and an interim report will be forwarded to Congress shortly. Although the study will focus primarily on the immediate threat of the [deleted] it

is expected to generate some qualitative insight into H&L utility
 [deleted.] A quantitative
 assessment of the utility of shipboard directed energy weapons
 against ballistic missiles will require additional research as
 well as detailed study of candidate weapons types, beam
 propagation, damage mechanisms, and shipboard compatibility.

QUESTIONS SUBMITTED BY SENATOR STENNIS

DDG-51 ARLEIGH BURKE DESTROYER

QUESTION: I understand the Congressional Budget Office (CBO) recommended reducing the projected DDG-51 destroyers by purchasing an additional number of CG-47 AEGIS cruisers. The AEGIS cruisers are more expensive and have additional capability. What are your thoughts concerning the CBO proposal?

ANSWER: To build an equal number of cruisers would cost approximately \$13B more in ship construction in then year dollars and require nearly 1400 more men to operate. The cost of an average DDG-51 will be approximately 70% of an average CG-47. The additional capacity of the cruiser (since the ships are similar in capability) is not required for the AEGIS destroyer missions, which have been carefully balanced with force levels and capabilities provided by other classes such as CG-47 and DD-963.

QUESTION: There has been some indication that the CBO estimates were developed using outdated cost factors. This led to the projected cost of the DDG-51 being overstated. Is this true and, if so what are the Navy's current estimates for the DDG-51 lead ship and the follow-on ships?

ANSWER: The CBO did indeed confuse cost estimates displayed in different year dollars. The ARLEIGH BURKE is estimated to cost \$1.25B in FY85 dollars, or \$1.1B in FY83 dollars. Average follow ships (6-10) will cost less than \$.7B in FY83 dollars. Comparable cruisers (6-10) are budgeted at \$1.0B.

QUESTION: Would you agree that the Navy's cost estimates for the DDG-51 should be fairly firm at this point? I believe the majority of weapon systems proposed for the ARLEIGH BURKE class are really state-of-art and have been deployed on existing combat ships.

ANSWER: Your statement is correct. The ship cost estimate can be reviewed in two major classifications; Shipbuilder related and Navy furnished (i.e., weapon systems and the associated electronics). Nearly all of the weapon systems which will be part of ARLEIGH BURKE are now in the fleet or are modifications of units currently in production. The only all new system is SEAFIRE, which is currently under development. Its cost represents less than 1/2 of 1 percent of the total ship estimate. In fact, this is one reason our confidence in the cost estimate is so high.

The shipbuilder related portion of the estimate was prepared using the same costing techniques that have been accurate in the past. Historical data gathered from FFG-7, CG-47, DD-963 and DDG-993 ship constructions has been used. The estimates were refined to account for DDG-51 characteristics differences.

Based on the depth of our estimates, we are highly confident of their accuracy. This confidence was recently endorsed by Secretary

Weinburger when, in January, he approved the Navys plan for our FY-85 lead ship contract.

QUESTION: Admiral Walters, your statement mentions that the most critical element of the Navy's force mix is the pending shortage of guided missile destroyers as the DDG 2 and DDG 37 class ships reach the end of their service life. It would appear essential to get on with the lead ship of the DDG 51 class this year or the shortfall of destroyers will be accentuated. Just what would the impact be on existing carrier battle groups if the lead ship is deferred to a later year?

ANSWER: As you know, with Congressional support we have worked diligently in recent years toward the goal of a 600 ship Navy. The concept of the 600 ship Navy is based on a discreet mix of ships evolved from the requirement for a balanced warfighting capability against a three-dimensional threat. Fifteen carrier battle groups are essential to achieving the force warfighting capability required to fight and win now, and also to defeat the projected threat of the 1990s and beyond. Congressional funding for the two NIMITZ class nuclear carriers in the 1983 budget, coupled with the carrier service life extension program (SLEP), will enable us to reach and maintain our planned goal of 15 carriers through the turn of the century. In regards to those ships which support the carriers in the high threat environments, the Navy's force level requirement is 100 AAW capable battle group combatants. As I have mentioned, the current shortfall in battle group AAW capability is one of the most significant issues facing Navy planners today. Block obsolescence of many guided missile destroyers in the early 1990s will erode force gains resulting from the introduction of the CG 47 class AEGIS cruisers. As a means of retaining some assets, Navy is currently modernizing and upgrading the combat capability of many of the guided missile cruisers where it is cost effective to do so; however, the DDG 2 class ships are manpower and maintenance intensive and their combat systems are obsolescent, thus they are no longer effective against the threat. Consequently, they do not contribute to the mix of battle group capable combatants required. DDG 51 class destroyers best satisfy Navy's requirement for an AAW combatant to replace those retiring assets, and lead ship authorization in FY-85 is critical not only to achieving the balanced 600 ship Navy goal, but more importantly to provide combat capability against the expanding threat of the 1990s and beyond. Delaying construction of ARLEIGH BURKE class destroyers would have several serious repercussions for the Navy:

- Force level impact becomes more severe with each year of delay.
- Force warfighting capability would be seriously affected because increased battle group flexibility, distributive offense, firepower volume and survivability provided by DDG 51 would not be achieved.
- Battle group composition attaining the balanced warfighting capability required against the three-dimensional threat would be deferred, and would necessitate the continued use of less capable frigates in the battle group; a mission for which they were not designed.

QUESTION: Would you describe the capabilities of the DDG-51 destroyer as currently designed and the importance of this ship to the carrier battle group.

ANSWER: ARLEIGH BURKE (DDG-51) is the destroyer of the

future. She will replace the DDG-2 and DDG-37 class ships as they reach block obsolescence in the early 1990's. Designed as a general purpose, multi-mission "work horse" of the fleet, DDG-51 brings enhanced survivability and service life margin for 30 years of service to our naval forces. Offensive operations, as a unit of Surface Action Groups, amphibious task forces and Carrier Battle Groups, requires a derivation of the AEGIS Combat System deployed in USS TICONDEROGA (CG-47). With her state-of-the-art combat system ARLEIGH BURKE is capable of simultaneous engagements of air, sub-surface and surface threats across a broad spectrum of destroyer tasks which contribute to our maritime strategy. For many years the Navy has carefully studied requirements for the destroyer which would replace those in service. The evolving Russian threat and fiscal reality require a general purpose, multi-mission and battle group capable ship. While capable she must be affordable in the numbers required to distribute offensive and defensive firepower. She achieves added target detection capability, reaction time, magazine capacity and greater inherent survivability. There is no alternative, known to the Navy, which can provide the needed capability at equal or less cost. Without this ship our entire maritime strategy will be jeopardized in the years to come.

QUESTION: What are the major weapons systems that will be included on this ship?

ANSWER: ARLEIGH BURKE AAW capability will be centered on the AEGIS weapon system, which includes the AN/SPY-1D multi-function radar. Four fixed arrays provide 360 degree coverage, while three illuminators control the terminal engagement phase of the ship's vertically launched STANDARD missiles. Anti-missile defense also includes the AN/SIQ-32 electronic warfare system and decoy launchers in addition to the PHALANX weapons system. Anti-submarine warfare can be conducted with the long range tactical towed array sonar (TACTAS) integrated with the active hull-mounted AN/SQS-53C sonar system. The ship is equipped with LAMPS electronics and can land, launch and control SEAHAWK ASW helicopters. Two deck-mounted torpedo launchers provide additional ASW firepower.

The 5"/54 caliber gun using standard ammunition and SEAFIRE guided projectiles provides effective shore bombardment capability. She also carries HARPOON anti-ship and vertically launched TOMAHAWK anti-ship and surface strike missiles.

ARLEIGH BURKE is a highly capable, multi-mission surface combatant designed to go "in harms way".

QUESTION: When do you plan the construction contract award for the lead ship?

ANSWER: Lead ship award for detail design and construction is scheduled for December 1984.

QUESTION: Do you continue to believe that this class destroyer is capable of operating in multi-threat environments which include air, surface, and subsurface threats?

ANSWER: Yes. Multi-mission engagement capability has been our number one design priority. The impressive list of weapons systems designed into ARLEIGH BURKE meet this requirement at an affordable price. DDG-51 provides the necessary capability to project power simultaneously in the 4 dimensions of naval warfare

(ASW/AAW/ASUB/STRIKE). She is a highly capable multi-mission surface combatant designed to go in harms way.

QUESTION: Would you provide for the record the proposed retirement schedule for the DDG 2 and DDG 37 class ships that complete their service life in the early 1990s?

ANSWER: For force level planning purposes, Navy uses a notional 30 year service life for all surface combatant ships (cruisers, destroyers and frigates). Since the DDG 2 AND DDG 37 class ships were commissioned between 1959 and 1964 their projected service life would carry them to the 1989 to 1994 time frame. The only exceptions to the 30 year retirement schedule for DDGs include three DDG 2s (DDG 19, 20, and 22) which are receiving an extensive AAW modernization and will be extended five years, and one DDG 37 class (DDG 42) which received the SM-2/NTU upgrade and will be extended 10 years.

LHD-1

QUESTION: It has been the thought of many over the past several years, including myself, that we must pursue the Vertical Short Take-Off and Landing (VSTOL) aircraft and other approaches to getting aviation at sea aboard smaller ships. Funds were included in the Fiscal Year 1984 Defense Appropriations Act for the lead ship of the LHD-1 class, the new amphibious assault ship. Would you describe the additional capabilities that the helicopters and VSTOL aircraft provide to this ship on assault operations?

ANSWER: LHD is designed to operate the CH-53E heavy lift helicopter, the future JVX medium lift tilt rotor aircraft, and the AV-8B VSTOL aircraft as well as helicopters currently in the Navy and Marine Corps inventories. LHD is unique in that it has a secondary mission of sea control and power projection if released from its primary amphibious mission. Use of the LHD in its secondary mission is, however, at the expense of helicopter lift for the amphibious assault. The Navy procurement plan for LHD is sized to provide sufficient lift for the helicopters required to land the assault element, the spearhead of the Marine amphibious assault force.

The CH-53E is the only helicopter capable of lifting the M-198 howitzer and the light armored vehicle (LAV) required to provide firepower and mobility for the heliborne assault. The 250 KT cruise speed of the JVX aircraft will provide a new capability to rapidly move troops and other equipment inland during the assault. These capabilities coupled with the speed and mobility of the Landing Craft Air Cushion (LCAC) add a new over-the-horizon dimension to the amphibious assault in the 1990's. The speed of the assault, the ability to launch from 25-50nm at sea, and the ability to land over a much wider range of beaches will revitalize the element of tactical surprise and enemy confusion. Additionally, LHD's ability to operate VSTOL will provide the option of carrying organic fixed wing aircraft to augment carrier based aircraft for tactical support during the assault.

The versatility of LHD with its embarked aircraft and LCACs will provide an invaluable addition to assault operations in the 1990's.

QUESTION: Is there any current Navy plan to further enhance the additional light carrier capability beyond that contained in the LHD-1 ship?

ANSWER: At this time we are not considering additional light carrier capability.

AEGIS

QUESTION: The lead ship of the CG 47 class, the USS TICONDEROGA, was deployed to the Eastern Mediterranean shortly after commissioning. Would you comment on the performance of this new class of guided missile cruiser in its current deployment?

ANSWER: TICONDEROGA has operated off the Lebanese coast since 17 November and has met or exceeded every challenge placed on her. She provided ground support to the U.S. Marine Corps and the multi-National peacekeeping force. While on the gunline she was directed to fire 5" guns several times in support of these troops. At sea, TICONDEROGA provided anti-air warfare coordination support from the day of her arrival. TICONDEROGA's performance was validated through numerous accomplishments:

- The quality of the battle group air picture improved dramatically after her arrival on station and resulted in the mapping of all air traffic routes and quick identification of aircraft in the operating area.

- Based on TICONDEROGA's performance, the United States Air Force relinquished air control responsibility for the Eastern Mediterranean to Commander Task Force 60.

- TICONDEROGA was also able to maintain an excellent air picture over land using her SPY-1A radar. She tracked helicopters at altitudes of 30 to 35 feet out to a range of 29 nautical miles. Jamming exercises in the Mediterranean with the SPY-1A radar at half power did not prevent TICONDEROGA from maintaining a clear track of targets. TICONDEROGA received numerous accolades from operational commanders during her deployment.

- TICONDEROGA's systems demonstrated outstanding reliability and operational availability. There were no AEGIS system casualties during her Sixth Fleet tour.

In summary, her performance was spectacular in every regard. Her introduction into the fleet represents a tremendous advancement in warfare capability.

QUESTION: How would you compare the performance of the CG 47 with other air defense ships?

ANSWER: CG 47 far surpasses any other air defense system at sea. Her ability to detect and track hundreds of air targets simultaneously is unprecedented. Her performance in the Eastern Mediterranean prompted the Anti-air Warfare Commander to say, "The unique capability of the AEGIS system has allowed TICONDEROGA to manage the air surveillance situation in the Eastern Mediterranean instead of reacting to it."

QUESTION: There have been some comments in the press that this ship has not been adequately tested. Would you comment on the testing of this ship and compare the results and depth of testing with that conducted on other classes of ships?

ANSWER: The AEGIS system has undergone more than 8 years of developmental and operational test and evaluation at sea and more than 7 years ashore. The testing program has resulted in over

33,000 hours of system operation ashore and more than 59,000 hours at sea. USS TICONDEROGA herself has fired 55 missiles in stringent at-sea testing environments, including electronic jamming and chaff. Hundreds of manned aircraft have been flown against the ship, representing threats over a wide range of speeds and altitudes.

Live missile firings have been made successfully against single and multiple target raids, including those replicating low-altitude "sea-skimming" targets.

The Commander, Operational Test and Evaluation Force (COMPTIEVFOR), commenting on the operational testing, said the tests were the "most intense short-of-war operational testing of a surface ship in the history of our Navy." He concluded that "TICONDEROGA demonstrated formidable warfare capability under threat test environments that would have overwhelmed any other ship in the fleet today."

QUESTION: What is the current status of testing on the AEGIS weapon system? When will this testing be completed?

ANSWER: Testing is never completed. Scheduled improvements to the weapon system planned for follow ships, including Vertical Launcher and the upgraded SPY-1B radar, will be thoroughly tested afloat and ashore.

Each ship in the class is tested before Navy acceptance, and after commissioning before joining the fleet. All ships are subjected to vigorous exercises throughout their active service life to measure system and crew effectiveness, to "shake down" after overhaul periods, and to test new systems.

QUESTION: There were 3 CG 47 AEGIS cruisers approved in the Fiscal Year 1984 Defense Appropriations Act. Would you provide for the record a chart reflecting the original Navy estimate for each of these ships, the bids that were received for each ship, and the current Navy estimate?

ANSWER:

<u>FY-84 CG 47'S</u>	<u>BUDGET (A)</u>	<u>BIDS (B)</u>	<u>AWARDS (C)</u>
CG 58			\$253M
CG 57	\$947	\$900M	\$325M
CG 59			
CLASS STANDARD EQUIPMENT			\$276M
	<u>\$947M</u>	<u>\$900M</u>	<u>\$854M</u>

(A) The original budget submission to the Congress was \$1022M. The approved FY-84 budget allowed \$947M.

(B) Individual bid data is proprietary, but in total, amounted to nearly \$900M.

(C) Ship construction awards were made to Ingalls (\$325M) for construction of CG 57 and CG 59, BIW (\$253M) for CG 58 and to Ingalls (\$276M) for 3 ship sets of Class Standard Equipment (one set is provided to BIW).

The FY-85 budget estimate currently before the Congress reflects these FY-84 awards.

QUESTIONS SUBMITTED BY SENATOR INOUE

RACER

QUESTION: The Rankine Cycle Energy Recovery System (RACER) has been approved for energy efficiency and will add greater range for the DDG-51 class ship. What are the Navy's estimated fuel savings for this system when installed in the DDG-51 and, what are the estimates for forward fit and backfit costs on the DDG-51 and other ships in first flight?

ANSWER: RACER is estimated to save 27,600 barrels of fuel annually when installed in a DDG-51 class ship. This equates to \$2.8 million per ship annually (\$102/barrel delivered in FY 1983 dollars). The forward fit of RACER is estimated to cost \$9.5 million (FY 1983) in a DDG-51 class ship.

QUESTION: Are you planning to achieve maximum speed and range for DDG-51 based on the available 100,000 brake HP per ship? If not, will you tell us why this brake HP will not get the DDG-51 to the Navy's goal for speed and range?

ANSWER: 100,000 brake HP installed per ship would achieve the maximum speed desired if it were able of being transmitted into the water. Because of the desire to have a common controllable pitch propeller mechanism with the CG-47, it is estimated that the propeller, if installed without modification, would not be capable of transmitting the amount of power developed by the gas turbine engines.

QUESTION: Are there any deficiencies which currently exist in your propulsion train plans? Specifically the gearbox, propeller shaft and propellers.

ANSWER: There are no deficiencies with the gear box. This is being designed to handle the maximum power available from the gas turbine engines. Because of the uncertainty of whether controllable pitch or fixed pitch propellers would be used in the early design, we opted to not develop a new higher horsepower propeller, but rather modify the CG-47 propeller. This propeller may not be able to transmit the full power available from the gas turbine engines. The propeller shaft is being sized for the maximum propeller power.

QUESTION: What is your estimate of the cost to improve the propulsion train to achieve maximum speed and range?

ANSWER: The cost estimate to improve the propulsion train to achieve the maximum speed and range from the gas turbine engines is approximately \$500,000 per ship.

QUESTION: What are the Navy's goals for energy efficiency in the DDG-51?

ANSWER: The original energy efficiency goal for the DDG-51 class was for a 35% reduction in energy consumption as compared to CG-47, adjusted for differences in ship size.

QUESTION: I understand there are acknowledged fuel savings and performance improvements that RACER will give the DD-963 class ships. What are they?

ANSWER: There are no acknowledged fuel savings or performance

improvements that RACER would give the DD-963 class ship. A DD-963 class ship was examined as a potential OPEVAL ship, but rejected because the cost was too great and the loss of operational capability was excessive.

QUESTION: At what point do you plan to install the RACER system in the DD-963 class ships?

ANSWER: There are not plans to install RACER in any DD-963 class ship.

QUESTION: What is the estimate of the cost to install RACER in a DD-963 class ship in fiscal year 1984 dollars?

ANSWER: RACER is not compatible with a DD-963 class ship. As such there is no estimate to install RACER. A DD-963 class ship was proposed as an OPEVAL platform for RACER. On a temporary basis, RACER can be made to physically fit in a DD-963. It was estimated that this would cost \$19.8 million.

QUESTION: Do you have an estimate of the savings if the RACER system were installed on the SPRUANCE during overhaul instead of the military sealift ship ADM CALLAGHAN?

ANSWER: There was no savings estimated if RACER were installed in a DD-963 class ship instead of the military sealift ship ADM CALLAGHAN.

NAVY SHIP MAINTENANCE AND MODERNIZATION

QUESTION: Why are ships, homeported in Hawaii, moved to other, including overseas locations, for repair work that could be done in Hawaii?

ANSWER: The Navy's maintenance and modernization policy with respect to U. S. ships homeported in Hawaii is that all scheduled depot level work is accomplished in Hawaii. If, however, a Hawaiian homeported ship is deployed and requires emergent repairs, the repairs are accomplished in the theatre in which the ship is located.

QUESTION: Why does this Administration not give a higher priority to ensuring the viability of the public shipyards in Hawaii?

ANSWER: As part of our strategic and operational requirements, Pearl Harbor Naval Shipyard stands prominent in its ability to support the logistic and maintenance needs of the Pacific Fleet. In that regard, Pearl Harbor Naval Shipyard must maintain the capability of emergency repairs of all Pacific Fleet ships and the capability of overhauling all ship types homeported in Hawaii. It is the Navy's policy to maintain the viability and responsiveness of both the Navy (public) shipyard and the private shipyards in Hawaii to the maximum practical extent. As the number of homeported ships in Hawaii increases, it is anticipated that the amount of ship repair and modernization work to be accomplished in Hawaii will likewise increase.

HOMEPORTING SHIPS IN HAWAII

Question: What are the tactical and strategic disadvantages for homeporting more naval ships in Hawaii?

Answer: In the past, Hawaii was viewed as being

potentially seven days closer (steaming time) to a war zone in the Western Pacific. [Deleted]. Hawaiian port and support facilities are operating at near capacity and could not be expanded without significant military construction (MILCON) expenditures. Hawaii is not only a strategically important homeport for naval ships, but it provides an equally important fleet surge capability when responding to crisis situations. The Navy's Strategic Homeporting Plan has been developed to improve our defensive posture and enhance our warfighting capability. This plan resulted from in depth analyses of logistic, geographic and industrial capability considerations. (D). We are continuing to investigate the feasibility of further increasing the number of ships in Hawaii.

HOMEPORTING SHIPS IN HAWAII

Question: If there are none to question (3) why then has there been a reduction of naval ships homeported in Hawaii rather than an increase.

Answer: The number of U.S. Navy ships homeported in Hawaii when the Strategic Homeporting Plan was approved in October 1982 was 42. [Deleted]. We are continuing to study all aspects of homeporting implications and currently are investigating the feasibility of increasing the number of ships homeported in Hawaii; possibly including a battleship, surface combatants, and support ships.

QUESTION: What may Hawaii, undoubtedly the most strategic port in the Pacific, realistically expect insofar as an increase in ships homeported in Hawaii in view of the Navy's increase to a 600 ship fleet?

ANSWER: We expect to add several surface combatants to Pearl Harbor, to enhance our force dispersal, and take advantage of Hawaii's strategic location.

QUESTIONS SUBMITTED BY SENATOR CHILES

DDG-51 CLASS

QUESTION: What is the FY 1985 estimate of the average unit end cost of the DDG-51 if the Navy procures the 29 ships currently programmed?

ANSWER: Through the FYDP, the average unit end cost will be \$958.5M. The total program average end cost for 29 ships will be slightly less.

DDG 51 FORCE LEVELS

QUESTION: In testimony before the Senate Armed Services Committee in support of the FY 1983 budget the Navy indicated that its force level objective for the DDG 51 class was 63 ships. Why has the Navy scaled this objective to the currently programmed 29 ships?

ANSWER: Since the 1983 budget deliberations, the Navy has reviewed its long range force level plans with the resulting

decision that of highest priority is the necessity to meet near term requirements and continue to review force structure options and alternatives for the long term. Replacement of the aging DDG 2 and DDG 37 class ships is the most pressing near term force level issue facing Navy planners. Twenty-nine of these ships are due for retirement between 1989 and 1994. ARLEIGH BURKE (DDG 51) class destroyers best satisfy Navy's requirement for a surface combatant to replace those 29 retiring assets by providing the combat capability needed against the growing threat of the 1990s and beyond. Planning for ships beyond the immediate replacement of the DDG 2 and DDG 37 classes will be studied with the goal of capitalizing on advancing technologies along with the design effort inherent in DDG 51 to develop a potential successor that would serve as a follow-on to flight three of the DDG 51 class. Such a successor could possibly be constructed in numbers to balance the difference between the immediate requirement for 29 DDG 51s and the long range requirement for sufficient battle combatants to carry out maritime strategy and defeat the projected threat. National strategy, threat, and acceptable risk will determine the eventual numbers of ships required.

NAVY SHIPBUILDING

Question: In the 1960's the Navy procured attack submarines at an average of 6 ships per year. These ships will be reaching the end of their projected operating life in the 1990s. With the lead ship of the new SSN Class projected to cost about \$2 billion, does the Navy plan to replace the older attack submarines at a comparable rate?

Answer: No. During the past 20 years, the number of nuclear attack submarines has grown from fewer than 20 ships to nearly 100. To maintain a 100 ship force with a 30 year life per ship, 100 ships must be built every 30 years; thus an average of 3 1/3 ships must be built each year. The New Design SSN lead ship cost is \$1.6 billion with \$1.0 billion for the fifth ship.

Question: Taking these costs into consideration, is the Navy planning a major service life extension program on the older attack submarines?

Answer: The Navy has nearly completed a study to extend the service life of the SSN-637 Class to 30 years. There is no plan to extend the life of pre-SSN 637 Classes. Our submarines must be sufficiently superior to the best of the Soviet Navy in order to overcome Soviet numerical superiority. As the Soviet navy improves technically the U.S. Submarine Force maintains adequacy by improving existing submarines. Eventually the margin for growth is used up. This is the case with the older SSNs.

DDG-51 AND AEGIS CRUISER ANTI-AIR TECHNOLOGY

QUESTION: Both the new DDG 51 and the AEGIS cruiser contain anti-air technology which is basically 20 years old. What efforts are underway in the Navy to upgrade its anti-air systems?

ANSWER: The conceptual design of the AEGIS Weapon System began in the mid-1960's and has kept pace with technology advances through the years. The first system was built and tested eight

years ago. The first production system was put to sea in USS TICONDEROGA (CG 47) in January of 1983. AEGIS is a state-of-the-art weapons system which is far and beyond the best anti-air system ever built. As now configured, the AEGIS Weapon System has the capability to handle all known threats we are currently faced with.

The AEGIS system has had, and continues to have, the capacity to evolve with improvements in threat performance. We have already completed development of improvements to the AEGIS radar, the weapons control system and the STANDARD missile to handle the projected threat of the 1990's.

ADDITIONAL COMMITTEE QUESTIONS

T-AGOS OCEAN SURVEILLANCE SHIPS

QUESTION: Navy witnesses have testified that over 98% of the steel and other materials paid for by the government has been accounted for in the TACOMA Boat Company records. This statistic is derived by a combination of inventory in the shipyard and "credits" from TACOMA Boat Company. What is the Navy's estimate of the value of actual material on hand in the shipyard compared to amount actually paid for?

ANSWER: The value of actual material received by the shipyard equals 100% of the amount paid for by the Navy. This has been confirmed by recent Navy audits. Including escalation, the Navy has paid \$84.9 million for this material.

QUESTION: The Navy shipbuilding budget includes \$192.9 million for three T-AGOS ships. Will the contract for basic construction be awarded competitively?

ANSWER: Yes, the fiscal year 1985 ships will be competed with an option for the FY 1986 ships.

QUESTION: What is the Navy's estimate of the number of TAGOS ships required?

ANSWER: The total force goal of the Navy is 26 TAGOS ships.

QUESTION: What is the Navy's contingency plan in the event TACOMA Boat is unable to complete construction of the remaining 10 T-AGOS under contract?

ANSWER: The Navy's contingency plan is presently being developed.

The GAO report is attached, no items were determined to be business sensitive or of a government proprietary nature.

Sonar Ship (TAGOS)

1. Original contract signed September 26, 1980, first ship delivered April 9, 1984; delivery date slippages presently range from 12 to 17 months.
2. Program costs for current 12-ship contract have increased from \$146 million in 1980 to \$213 in 1984 with additional costs projected.
3. The Navy has paid Tacoma Boatbuilding Co., (TBC) \$167 million as of May 4, 1984, on the T-AGOS program.
4. TBC is receiving progress payments on all 12 T-AGOS; ships 7-12 are approximately 70 percent complete although construction has not begun.
5. Numerous changes have been made to original contract to accommodate TBC. These changes have resulted in the release of retentions.
6. Funds deposited in a special bank account by the Navy for the T-AGOS program are being used with Navy approval for expenses involving other TBC ship programs.
7. The Navy has accepted delivery on six SURTASS. Production was halted on the remaining six due to the discovery of latent defects, resulting from the receipt of defective parts from the contractor's sub-vendor. Production was resumed.
8. Since 1981, TBC has been transferring T-AGOS material to other ship programs without Navy approval or knowledge.
9. Budgeted change orders have averaged approximately 22 percent of the basic construction account.
10. The contract included a provisional amount of \$300,000 per ship for on-board spare parts. The total amount was to be definitized at a later date. To date on-board spare parts have been financed through change orders at a cost of \$1 million per ship.
11. TBC planned to build the 12 T-AGOS using zone outfitting as a cost/time saving method. Zone outfitting was not used on the first ship. It was estimated to be 10 to 15 percent on the second ship; 20 to 25 percent on the third, and 40 to 50 percent on the fourth.
12. The Navy conducted a Pre-Award Survey of TBC which noted a less than favorable TBC current cash position.
13. According to the contract the Navy has grounds for suspending progress payments and possible grounds for default.
14. The Navy is currently considering changing the hull configuration of the T-AGOS to allow for operations in rougher seas and is also developing an upgraded SURTASS.
15. TBC has defaulted on its line of credit with Thai Banks.
16. TBC is party to various legal actions that could adversely affect TBC's ability to continue operations.
17. The Navy has hired Coopers & Lybrand to perform a comprehensive financial analysis.

OCEAN SURVEILLANCE SHIPS

1. The original contract was signed September 26, 1980, and delivery of the first ship was scheduled for March 1983. T-AGOS 1 was delivered April 9, 1984. Delivery date slippages presently range from 12 to 17 months. TBC experienced a 10-week strike in 1983. However, prior to the strike, the 12 T-AGOS were 9 months behind the original contract delivery date. (See table I.)
2. The original \$146.9 million fixed price plus escalation contract was reformed in February 1984. The reformed \$213 million firm fixed price contract increases individual ship costs from \$12.24 million to \$17.75 million.
- 3./4. Payments to TBC are based on the percentage of progress. Credit is given for materials purchased and assigned to the contract. Construction has begun on T-AGOS 1-6; no work has been done on T-AGOS 7-12. T-AGOS 7-12 are approximately 70 percent complete. As of May 9, 1984, the Navy has paid TBC \$167 million on the T-AGOS program. (See table II.)
- 5./6. The original contract included a retainage of 5 percent and a performance reserve of 2 percent. In December 1982 the Navy modified the contract to reduce the retainages and performance reserve to 2.5 percent and 1 percent respectively. In December 1983 the Navy further modified the contract to release all retentions. The Navy agreed to provide this "Unusual Progress Payment" to TBC subject to the

- establishment of a 2-month Special Bank account. The retentions and subsequent progress payments were deposited into this account by the Navy. TBC has authority to use funds from this account, with Navy approval, to pay for expenses incurred in TBC's other non-Navy contracts. As of April 12, 43 percent of the expenditures from this account have been used by TBC to pay for non-T-AGOS related expenses.
7. The requirements for the number of T-AGOS are determined by the requirements for the number of SURTASS. The 12 SURTASS units are under contract; the Navy has accepted delivery on 6. Production was halted on the remaining six for 13 days in December 1983 due to discovery of latent defects resulting from the receipt of defect material from the contractor's sub-vendor. Production has resumed.
 8. In April 1984 the Navy notified TBC that all T-AGOS material was not present. The Navy found that substantial quantities of steel (2.8 million pounds) had been transferred to other projects since April 1981. The Navy has found credit invoices for 98.7 percent of the transferred material. TBC has begun an audit of all material transfers related to the T-AGOS contract. It is estimated that it will take 2 months to complete the audit.
 9. Budget change orders have averaged approximately 22 percent of the basic construction account. The DOD guideline established for this account is 10 percent of the basic construction account for lead ships and 5 percent for follow-on ships.
 10. The original contract price included \$300,000 per ship for on-board spare parts. This amount was provisional and is subject to adjustment at a later date. On-board spare parts have been financed through change orders. Spare parts are required to meet 1 year's (7,000 hours) operations. TBC recently submitted a \$13.5 million spare parts proposal for the pricing out of this item. DCAA reviewed the proposal and found it incomplete. DCAA also found that TBC had ordered 144 cylinder head assemblies at a cost of \$2,598 per unit. According to a DCAA official, the Navy knew 1 month later that assemblies were in excess of the requirements. The Navy waited 1 year before directing TBC to return the assemblies. TBC then received a credit of \$960 per unit for 112 returned assemblies.
 11. TBC planned to use zone outfitting to build the 12 T-AGOS. The ship is divided into "zones" which are worked on simultaneously and then welded together. According to TBC, substantial production time and costs can be saved with this method. Zone outfitting was not used on T-AGOS 1, it is estimated to be used 10 to 15 percent on the second ship, 20 to 25 percent on the third, and 40 to 50 percent on the fourth.
 12. Prior to the award of the contract, the Navy conducted a Pre-Award Survey of TBC's financial capability. The report issued August 21, 1980, showed a negative working capital position for the previous 3 years and current ratios below industry average. It also noted that TBC's current position was less than favorable.
 13. The contract contains a clause which allows for reduction or suspension of progress payments whenever the contracting officer finds substantial evidence that the contractor has failed to make progress, or is in such unsatisfactory financial condition as to endanger performance of the contract, or has so failed to make progress that the progress payments exceed the fair value of the work accomplished. The Navy may cancel the contract when the contractor fails to deliver the vessels within the specified time frame, or so fails to make progress as to endanger performance of the contract.
 14. The ships requested in fiscal year 1985 will be basically the same design as the current 12 ships under contract. The Navy is currently considering a change in hull configuration of future T-AGOS to allow for operations in rougher seas. As the current requirements indicate a need for more than 18 T-AGOS/SURTASS units, it is fair to say that the Navy may be requesting at least six more T-AGOS of a different hull configuration in later years. An upgraded SURTASS is also in R&D.
 - 15/16. TBC is in default under a letter of credit agreement with respect to a Royal Thai Navy contract. TBC is also party to various legal actions involving potential liabilities and recoverability of claims.
 17. In February 1984 the Navy hired Coopers & Lybrand under a sole source contract, instead of using available government audit agencies, to perform a comprehensive financial analysis of TBC. According to the Navy, there is an urgent requirement for such analysis to determine the impact of TBC's financial position

TABLE I

TABLE OF SLIPPAGES FROM ORIGINAL
CONTRACT DELIVERY DATE

TAGOS	ORIG CONTRACT DELIV DATE 9/26/80	PRESTRIKE EST DELIVERY DATE 7/1/83	PRESTRIKE SLIPPAGE FROM ORIG CONTRACT DELIVERY DATE	CURRENT EST DEL DATE 2/1/84	CURRENT SLIPPAGE FROM ORIG CONTRACT DELIVERY DATE	
					ACTUAL DELIVERY DATE	
1	3/83	12/18/83	9 mos.	03/07/84	04/09/84	13 mos.
2	6/83	3/03/84	9 mos.	06/25/84		12 mos.
3	8/83	5/19/84	9 mos.	10/29/84		14 mos.
4	11/83	8/09/84	9 mos.	02/15/85		15 mos.
5	1/84	10/21/84	9 mos.	05/20/85		16 mos.
6	4/84	1/13/85	9 mos.	08/14/85		16 mos.
7	6/84	3/29/85	9 mos.	11/01/85		17 mos.
8	9/84	6/11/85	9 mos.	01/16/86		16 mos.
9	11/84	8/25/85	9 mos.	03/27/86		16 mos.
10	2/85	11/05/85	9 mos.	06/06/86		16 mos.
11	4/85	1/19/86	9 mos.	08/14/86		16 mos.
12	7/85	4/04/86	9 mos.	10/23/86		15 mos.

TABLE II
PROGRESS TO DATE ON
CONSTRUCTION OF TAGOS

	CONSTRUCTION START DATE AS OF 2/1/84	PERCENT OF CONTRACT COMPLETION AS OF 5/4/84
TAGOS 1	04/14/82*	100.0
2	07/28/82*	96.2
3	11/08/82*	87.5
4	02/21/83*	77.6
5	05/20/83*	71.5
6	07/27/83*	70.1
7	07/16/84	70.3
8	09/10/84	70.5
9	11/19/84	70.5
10	02/25/85	70.9
11	04/26/85	70.9
12	07/15/85	70.5

* Actual date

Original contract signed September 26, 1980, first ship delivered April 9, 1984; delivery date slippages presently range from 12 to 17 months.

COMMENT: Prior to the 1983 strike, the initial contract delivery dates had been extended nearly seven months (206 days) to reflect performance extensions resulting from incorporation of mandatory, Navy-directed changes to the technical baseline. When the 1983 strike began, the twelve T-AGOS ships were approximately two months behind schedules which reflected the revised contract delivery dates. The strike added another delay of at least two and one-half months. Tacoma Boatbuilding Company (TBC) is on schedule with the current contract delivery dates.

Program costs for current 12-ship contract have increased from \$146 million in 1980 to \$213 in 1984 with additional costs projected.

COMMENT: The T-AGOS contract was awarded in September 1980 for a price of \$146,869,080. The price was expressed in terms of base month dollars (March 1980 dollars for labor, including

overhead, and May 1980 dollars for material) and was subject to increases for economic price adjustments based on the movement of published Bureau of Labor Statistics indices for labor and material. Through mid February 1984, the Navy had directed changes to the technical baseline which increased the basic price in base month dollars. Additional amounts were reserved for economic price adjustments associated with these changes. When all of these amounts are totaled, they approximate the restructured contract price of \$213 million.

The Navy has paid TBC \$167 million as of May 4, 1984, on the T-AGOS program.

COMMENT: The statement is correct. As of 4 May 1984, the Navy had paid TBC \$167,210,099.

TBC is receiving progress payments on all 12 T-AGOS; ships 7-12 are approximately 70 percent complete although construction has not begun.

COMMENT: Approximately 70 percent of the ship price for T-AGOS 7-12 has been paid. The T-AGOS contract is a multiyear contract with the total contract price divided equally among the twelve ships. Thus, the price of each ship contains amounts for nonrecurring work which is normally performed during the earlier stages of contract performance. Examples of this nonrecurring work include ship design, construction drawings, planning, and purchase specification preparation. As this nonrecurring work progresses, progress payments are made out of the amounts provided for each of the twelve ships. The progress payment for each ship bears its share of the progress payment for the nonrecurring work. Progress payments are also made on the basis of progress in acquiring material. Almost all material for the twelve ships has been purchased and delivered to the TBC shipyard. This material represents over 50% of the total ship. When amounts paid for material progress are added to amounts paid for nonrecurring efforts, the total equals approximately 70 percent of the ship price.

Numerous changes have been made to original contract to accommodate TBC. These changes have resulted in the release of retentions.

COMMENT: Changes were not made to accommodate TBC. All changes were supported by adequate consideration as required by law and regulation. Changes made to the T-AGOS contract generally consist of two categories, Headquarters Modifications (changes which impact the delivery date, add or change requirements to the specifications, or modify some basic contract requirement) and Field Modifications (changes which clarify the specifications or make such minor technical changes that Headquarters approval is not required). To date six Headquarters Modifications and one-hundred and twenty-four Field Modifications have been adjudicated on the T-AGOS contract. The release of retentions was not a result of these changes, but was done by the Navy, pursuant to regulation, to help the company contend with their financial difficulties, thereby improving the Navy's chances of getting the twelve ships.

Funds deposited in a special bank account by the Navy for the T-AGOS program are being used with Navy approval for expenses involving other TBC ship programs.

COMMENT: Under a fixed price shipbuilding contract, progress payments are made in accordance with contract provisions based on the percentage of physical completion of the contract. If the contractor has earned the progress payment, the Navy is obligated to pay. The Navy normally has no legal or contractual authority to control what the contractor does with the progress payment funds. However, shipbuilding contracts do provide for the Government's retention of a portion of earned progress payments until contract completion to ensure the contractor completes his obligations under the contract. In December 1983, the Navy released approximately \$4.2 million in retentions to permit TBC to make payroll and certain vendor payments. Although TBC had earned the \$4.2 million by making progress under the contract, the Navy was not obligated to make payment until contract completion. Thus, to protect its interests, the Navy required TBC to deposit the funds in a special bank account which required Navy approval for any withdrawal. TBC further agreed that future progress payments under the T-AGOS contract would be deposited in the special bank account with the same Navy controls. It was recognized at the outset that withdrawals might be required for other-than-TAGOS work to permit continued performance by TBC. No appropriations statute has been violated.

The Navy has accepted delivery on six SURTASS. Production was halted on the remaining six due to the discovery of latent defects, resulting from the receipt of defective parts from the contractor's sub-vendor. Production was resumed.

COMMENT: Production was halted only eight working days as a result of the discovery of minor technical problems during a normal in-plant inspection by the Government. Array connectors were found to be faulty. The connectors were re-designed and production resumed using the new connectors. Backfitting of the new connectors is being accomplished on completed arrays where required.

Since 1981, TBC has been transferring T-AGOS material to other ship programs with Navy approval or knowledge.

COMMENT: When the Navy discovered that transfers were being made, an in-depth study was ordered. This study is continuing. At present, all the material chargeable to Navy work appears to be identified, and any transfers have been properly credited to the Navy's account. At this time, all T-AGOS material not yet incorporated into the ships is inventoried, marked, and segregated in TBC warehouses.

Budgeted change orders have averaged approximately 22 percent of the basic construction account.

COMMENT: Although 22 percent of the basic construction amount is budgeted for changes, only 16 percent has been applied against actual adjudicated changes as of 1 March 1984. Of this, nearly one-third (4.8 percent), represents amounts for spares and repair parts and for mandatory changes to comply with the requirements of Regulatory Agencies.

The contract included a provisional amount of \$300,000 per ship for on-board spare parts. The total amount was to be definitized at a later date. To date on-board spare parts have

been financed through change orders at a cost of \$1 million per ship.

COMMENT: Because T-AGOS is a new design, first-of-a-kind ship, the cost of initial spare parts requirements could only be estimated. Consequently, the contract included a provisional amount of \$300,000 per ship for on-board spare parts, an amount reflecting the Navy's best estimate of spare parts cost at the time of contract award. It was expected that this provisional amount would change as the Navy defined its spare parts requirements. Throughout the course of the contract, the Navy has been able to define its requirements and incorporate those requirements into the contract by modification, using existing program funds.

TBC planned to build the T-AGOS using zone outfitting as a cost/time saving method. Zone outfitting was not used on the first ship. It was estimated to be used 10 to 15 percent on the second ship; 20 to 25 percent on the third, and 40 to 50 percent on the fourth.

COMMENT: The contract does not specify any particular method of construction. The use of the zone outfitting method of construction, and the extent employed on each individual hull, is a prerogative of TBC. TBC's progress in making the transition from conventional to zone outfitting has been much slower than planned. It now appears that TBC will achieve 100 percent zone outfitting on ships six through twelve.

The Navy conducted a Pre-Award Survey of TBC which noted a less than favorable TBC current cash position.

COMMENT: Prior to the award of any shipbuilding contract, the Navy makes a determination of responsibility on the prospective contractor, considering all available information, including the results of a Pre-Award Survey. In this particular case, the Pre-Award Survey Team recommended award to Tacoma Boat. In addition to noting that Tacoma Boat "is solvent with limited current capability to meet liabilities", the team report also noted on the same page that growth in sales and earnings was fairly constant, that there was adequate financial backing, that trade creditors gave Tacoma Boat a good rating, that Tacoma Boat's manpower estimate and zone outfitting expectations appeared to be reasonable, and that the sales forecast indicated continued volume. The Pre-Award Survey team made a firm recommendation that TBC be awarded the contract.

According to the contract the Navy has grounds for suspending progress payments and possible grounds for default.

COMMENT: While the provisions of the T-AGOS contract allowed for the suspension of progress payments, the Navy had no reason to invoke these because TBC was making progress and suspension of progress payments would have impeded that progress. The provisions of the T-AGOS contract allow for a default termination; however, the Navy has no reason to invoke those provisions because Tacoma Boatbuilding Company is making progress and termination would assure no further progress.

The Navy is currently considering changing the hull configuration of the T-AGOS to allow for operations in rougher seas and is also developing an upgraded SURTASS.

COMMENT: At this time, the Navy is considering a request for the construction of additional T-AGOS-type ships, using SWATH

technology. However, the current Five Year Defense Plan does not include these ships. A SWATH design is being considered to provide a more stable platform in areas where high sea states are anticipated. Studies have validated the requirement for at least 24 TAGOS/SURTASS units.

TBC has defaulted on its line of credit with Thai Banks.

COMMENT: The Navy is aware that this contention has been made.

TBC is party to various legal actions that could adversely affect TBC's ability to continue operations.

COMMENT: The Navy is aware of legal actions involving TBC that could impact TBC's ability to continue operations.

The Navy has hired Coopers & Lybrand to perform a comprehensive financial analysis.

COMMENT: The Navy contracted with Coopers and Lybrand to perform an independent analysis of certain aspects of TBC's business. Coopers and Lybrand reviewed, among other things, TBC cash-flow projections, the underlying assumptions used to generate these data, and the acceptability of the accounting procedures used. Coopers and Lybrand, with wide-ranging experience in financial analysis for commercial organizations, including the American shipbuilding industry, was considered uniquely qualified to provide the analysis in the short time available.

The original contract was signed September 26, 1980, and delivery of the first ship was scheduled for March 1983. T-AGOS 1 was delivered April 9, 1984. Delivery date slippages presently range from 12 to 17 months. TBC experienced a 10-week strike in 1983. However, prior to the strike, the 12 T-AGOS were 9 months behind the original contract delivery date. (See Table I).

COMMENT: Prior to the 1983 strike, the initial contract delivery dates had been extended nearly seven months (206 days) to reflect performance extensions resulting from incorporation of mandatory, Navy-directed changes to the technical baseline. When the 1983 strike began, the twelve T-AGOS ships were approximately two months behind schedules which reflected the revised contract delivery dates. The strike added another delay of at least two and one-half months. TBC is on schedule with the current contract delivery dates.

The original \$146.9 million fixed price plus escalation contract was reformed in February 1984. The reformed \$213 million firm fixed price contract increases individual ship costs from \$12.24 million to \$17.75 million.

COMMENT: The T-AGOS contract was awarded in September 1980 for a price of \$146,869,080. The price was expressed in terms of base month dollars (March 1980 dollars for labor, including overhead, and May 1980 dollars for material) and was subject to increases for economic price adjustments based on the movement of published Bureau of Labor Statistics indices for labor and material. Through mid February 1984, the Navy had directed changes to the technical baseline which increased the basic price in base month dollars. Additional amounts were reserved for economic price adjustments associated with these changes. When all of these amounts are totaled, they approximate the restructured contract price of \$213 million.

Payments to TBC are based on the percentage of progress. Credit is given for materials purchased and assigned to the contract. Construction has begun on T-AGOS 1-6; no work has been done on T-AGOS 7-12. T-AGOS 7-12 are approximately 70 percent complete. As of May 9, 1984, the Navy has paid TBC \$167 million on the T-AGOS program. (See Table II).

COMMENT: Approximately 70 percent of the ship price for T-AGOS 7-12 has been paid. The T-AGOS contract is a multiyear contract with the total contract price divided equally among the twelve ships. Thus, the price of each ship contains amounts for nonrecurring work which is normally performed during the earlier stages of contract performance. Examples of this nonrecurring work include ship design, construction drawings, planning, and purchase specification preparation. As this nonrecurring work progresses, progress payments are made out of the amounts provided for each of the twelve ships. The progress payment for each ship bears its share of the progress payment for the nonrecurring work. Progress payments are also made on the basis of progress in acquiring material. Almost all material for the twelve ships has been purchased and delivered to the TBC shipyard. This material represents over 50% of the total ship. When amounts paid for material progress are added to amounts paid for nonrecurring efforts, the total equals approximately 70 percent of the ship price. As of 4 May 1984, the Navy had paid TBC \$167,210,099.

The original contract included a retainage of 5 percent and a performance reserve of 2 percent. In December 1982 the Navy modified the contract to reduce the retainages and performance reserve to 2.5 percent and 1 percent respectively. In December 1983 the Navy further modified the contract to release all retentions. The Navy agreed to provide this "Unusual Progress Payment" to TBC subject to the establishment of a 2-month Special Bank account. The retentions and subsequent progress payments were deposited into this account, by the Navy. TBC has authority to use funds from this account, with Navy approval, to pay for expenses incurred in TBC's other non-Navy contracts. As of April 13, 43 percent of the expenditures from this account have been used by TBC to pay for non-T-AGOS related expenses.

COMMENT: Under a fixed price shipbuilding contract, progress payments are made in accordance with contract provisions based on the percentage of physical completion of the contract. If the contractor has earned the progress payment, the Navy is obligated to pay. The Navy normally has no legal or contractual authority to control what the contractor does with the progress payment funds. However, shipbuilding contracts do provide for the Government's retention of a portion of earned progress payments until contract completion to ensure the contractor completes his obligations under the contract. In December 1983, the Navy released approximately \$4.2 million in retentions to permit TBC to make payroll and certain vendor payments. Although TBC had earned the \$4.2 million by making progress under the contract, the Navy was not obligated to make payment until contract completion. Thus, to protect its interests, the Navy required TBC to deposit the funds in a special bank account which required Navy approval for any withdrawal. TBC further agreed that future progress payments under the T-AGOS contract would be deposited in the special bank account with the same Navy controls. It was recognized at the outset that withdrawals might be required for other-than-T-AGOS work to permit continued performance by TBC. No appropriations statute has been violated.

The requirements for the number of T-AGOS are determined by the requirements for the number of SURTASS. The 12 SURTASS units are under contract; the Navy has accepted delivery of 6. Production was halted on the remaining six for 13 days in December 1983 due to discovery of latent defects resulting from the receipt of defect material from the contractor's sub-vendor. Production has resumed.

COMMENT: Production was halted only eight working days as a result of the discovery of a minor technical problems during a normal in-plant inspection by the Government. Array connectors were found to be faulty. The connectors were re-designed and production resumed using the new connectors. Backfitting of the new connectors is being accomplished on completed arrays where required.

In April 1984 the Navy notified TBC that all T-AGOS material was not present. The Navy found that substantial quantities of steel (2.8 million pounds) had been transferred to other projects since April 1981. The Navy has found credit invoices for 98.7 percent of the transferred material. TBC has begun an audit of all material transfers related to the T-AGOS contract. It is estimated that it will take 2 months to complete the audit.

COMMENT: It is expected that the audit will be completed in July 1984.

Budgeted change orders have averaged approximately 22 percent of the basic construction account. The DOD guideline established for this account is 10 percent of the basic construction account for lead ships and 5 percent for the follow-on ships.

COMMENT: Although 22 percent of the basic construction amount is budgeted for changes, only 16 percent has been applied against actual adjudicated changes as of 1 March 1984. Of this, nearly one-third (4.8 percent), represents amounts for spares and repair parts and for mandatory changes to comply with the requirements of Regulatory Agencies.

The original contract price included \$300,00 per ship for on-board spare parts. This amount was provisional and is subject to adjustment at a later date. On-board spare parts have been financed through change orders. Spare parts are required to meet 1 year's (7,000 hours) operations. TBC recently submitted a \$13.5 million spare parts proposal for the pricing out of this item. DCAA reviewed the proposal and found it incomplete. DCAA also found that TBC had ordered 144 cylinder head assemblies at a cost of \$2,598 per unit. According to a DCAA official, the Navy knew 1 month later that the assemblies were in excess of the requirements. The Navy waited 1 year before directing TBC to return the assemblies. TBC then received a credit of \$960 per unit for 112 returned assemblies.

COMMENT: Because T-AGOS is a new design, first-of-a-kind ship, the cost of initial spare parts requirements could only be estimated. Consequently, the contract included a provisional amount of \$300,000 per ship for on-board spare parts cost at the time of contract award. It was expected that this provisional amount would change as the Navy defined its spare parts requirements and incorporated those requirements into the contract by modification, using existing program funds. Regarding the procurement of excess cylinder heads, the number ordered was in error. Discovery of the excess quantity was made at delivery of material. The Navy immediately took action to dispose of the excess, contacting other Government agencies for possible

utilization. When these efforts were not successful, commercial companies which might have use for the items were contacted. No one needed the material. With no other alternatives available, the Government requested TBC to contact the material supplier and request them to buy back the material at the best available price. This process took one year to resolve.

Tacoma Boatbuilding Company planned to use zone outfitting to build the 12 T-AGOS. The ship is divided into "zones" which are worked on simultaneously and then welded together. According to TBC, substantial production time and costs can be saved with this method. Zone outfitting was not used on T-AGOS 1, it is estimated to be used 10 to 15 percent on the second ship, 20 to 25 percent on the third, and 40 to 50 percent on the fourth.

COMMENT: The contract does not specify any particular method of construction. The use of the zone outfitting method of construction, and the exact extent employed on each individual hull, is a prerogative of TBC. TBC's progress in making the transition from conventional to zone outfitting has been much slower than planned. It now appears that TBC will achieve 100 percent zone outfitting on ships six through twelve.

Prior to the award of the contract, the Navy conducted a Pre-Award Survey of TBC's financial capability. The report issued August 21, 1980, showed a negative working capital position for the previous 3 years and current ratios below industry average. It also noted that TBC's current position was less than favorable.

COMMENT: Prior to the award of any shipbuilding contract, the Navy makes a determination of responsibility on the prospective contractor, considering all available information, including the results of a Pre-Award Survey. In this particular case, the Pre-Award Survey Team recommended award to Tacoma Boat. In addition to noting that Tacoma Boat "is solvent with limited current capability to meet liabilities", the team report also noted on the same page that growth in sales and earnings was fairly constant, that there was adequate financial backing, that trade creditors gave Tacoma Boat a good rating, that Tacoma Boat's manpower estimate and zone outfitting expectations appeared to be reasonable, and that the sales forecast indicated continued volume. The Pre-Award Survey team made an firm recommendation that TBC be awarded the contract.

The contract contains a clause which allows for reduction or suspension of progress payments whenever the contracting officer finds substantial evidence that the contractor has failed to comply with any material requirements of the contract, has so failed to make progress, or is in such unsatisfactory financial condition as to endanger performance of the contract, or has so failed to make progress that the progress payments exceed the fair value of the work accomplished. The Navy may cancel the contract when the contractor fails to deliver the vessels within the specified time frame, or so fails to make progress as to endanger performance of the contract.

COMMENT: While the provisions of the T-AGOS contract allowed for the suspension of progress payments, the Navy had no reason to invoke these because Tacoma Boatbuilding Company was making progress and suspension of progress payments would have impeded that progress. The provisions of the T-AGOS contract allow for a default termination; however, the Navy has no reason to invoke those provisions because TBC is making progress and termination would assure no further progress.

The ships requested in fiscal year 1985 will be basically the same design as the current 12 ships under contract. The Navy is currently considering a change in the hull configuration of future T-AGOS to allow for operations in rougher seas. As the current requirements indicate a need for more than 18 T-AGOS/SURTASS units, it is fair to say that the Navy may be requesting at least six more T-AGOS of a different hull configuration in later years. An upgraded SURTASS is also in R&D.

COMMENT: At this time, the Navy is considering a request for the construction of additional T-AGOS-type ships, using SWATH technology. However, the current Five Year Defense Plan does not include these ships: A SWATH design is being considered to provide a more stable platform in areas where high sea states are anticipated. Studies have validated the requirement for at least 24 TAGOS/SURTASS units.

TBC is in default under a letter of credit agreement with respect to a Royal Thai Navy Contract. TBC is also party to various legal actions involving potential liabilities and recoverability of claims.

COMMENT: The Navy is aware that this contention has been made. The Navy is aware of legal actions involving TBC that could impact TBC's ability to continue operations.

In February 1984 the Navy hired Coopers & Lybrand under a sole source contract, instead of using available government audit agencies, to perform a comprehensive financial analysis of TBC. According to the Navy, there is an urgent requirement for such an analysis to determine the impact of TBC's financial position on the T-AGOS program in order to minimize the government's financial exposure under the contract.

COMMENT: The Navy contracted with Coopers and Lybrand to perform an independent analysis of certain aspects of TBC's business. Coopers and Lybrand reviewed, among other things, TBC cash-flow projections, the underlying assumptions used to generate these data, and the acceptability of the accounting procedures used. Coopers and Lybrand, with wide-ranging experience in financial analysis for commercial organizations, including the American shipbuilding industry, was considered uniquely qualified to provide the analysis in the short time available.

SUBCOMMITTEE RECESS

Thank you very much, gentlemen. The subcommittee will stand in recess until 10 a.m. on Tuesday, April 3, 1984, when it will reconvene to receive testimony on aircraft procurement and research and development.

[Whereupon, at 11:37 a.m., Thursday, March 29, the subcommittee was recessed, to reconvene at 10 a.m., Tuesday, April 3, 1984.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

TUESDAY, APRIL 3, 1984

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room SD-124, Dirksen Senate Office Building, Hon. Warren E. Rudman presiding.
Present: Senator Rudman.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENT OF THE HONORABLE THOMAS E. COOPER, ASSISTANT SECRETARY OF THE AIR FORCE FOR RESEARCH, DEVELOPMENT AND LOGISTICS

ACCOMPANIED BY:

LT. GEN. ROBERT D. RUSS, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION, UNITED STATES AIR FORCE

MAJ. GEN. WILLIAM A. GORTON, DIRECTOR OF OPERATIONAL REQUIREMENTS, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION

MAJ. GEN. GEORGE L. MONAHAN, JR., DIRECTOR OF DEVELOPMENT AND PRODUCTION, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION

RESEARCH, DEVELOPMENT AND ACQUISITION

OPENING STATEMENT OF SENATOR RUDMAN

Senator RUDMAN. The subcommittee will be in order.

The chairman is otherwise occupied with Senate leadership business this morning. Hopefully he will get here later this morning.

This is the time scheduled to continue our review of the Air Force's original budget request. Today we will focus on the proposed research, development and acquisition request for Air Force aircraft and associated support equipment.

We will consider the Department's request for specific weapons later this month.

BUDGET REQUEST

The original budget request was for \$28.7 billion for aircraft procurement, an increase of \$7.3 billion. This is an increase of 34 percent, or nearly 28 percent in real growth.

R&D ITEMS

In R&D, the four major aircraft development programs—the advanced tactical fighter, the C-17, the dual-role fighter, and the next generation trainer—increase from \$203 million to \$449 million, more than doubling basic aircraft R&D.

The Air Force goal of expanding its tactical fighter wings has significant spending implications in the out-years. We hope to explore these implications because of their obvious impact on current efforts to pare down defense spending.

The Air Force recently pulled back from its 44-wing target in favor of 40 wings by 1989. The committee will be interested in how this affects not only aircraft acquisition rates, but the fighter mix and the Air Force ability to respond to our expanding global commitments.

Because of the classified nature of much of this information, it may be necessary later this morning to close this hearing. We will try to avoid this for as long as we can.

While the committee has not received the details of the recently proposed \$14-billion defense reduction, I hope we can also develop an understanding of the unlikely adjustments that will be proposed.

INTRODUCTION OF WITNESSES

Today we will hear testimony from Dr. Tom Cooper, Assistant Secretary of the Air Force for Research, Development and Logistics, and Lt. Gen. Bob Russ, Air Force Deputy Chief of Staff for Research, Development and Acquisition.

Gentlemen, your prepared statements will be inserted in the record. We will proceed this morning with any brief opening remarks you might like to make in the way of summary or amplification of your written statement.

Welcome to the hearing. Secretary Cooper, please proceed.

HEARING PROCEDURE

Dr. COOPER. I will, thank you, Mr. Chairman.

We do have a short prepared statement we would like to submit for the record. What I might suggest, if it meets with the committee's pleasure, is that we reorient the sequence in which we have the topics.

There is a segment of our presentation today that we will have to do in closed session. I think if we can move General Gorton's presentation right after the presentations General Russ and I will make, that will consume on the order of an hour or so then we will need about an hour in closed session.

So, if we could go closed at roughly 11 o'clock when we reach that point, that will leave that time for the tactical fighter road map briefing and others as well.

Senator RUDMAN. I think we will do that. I will only ask, if it is at all possible, in light of the questions that the committee has, if you can compress that hour you talked about a little bit. We have some other time-sensitive requirements today.

We will proceed on that basis in the order you suggest.

Dr. COOPER. We will try to expedite it.

OPENING REMARKS OF DR. COOPER

If I might in the way of a very brief opening statement, I would like to amplify on a statement that both Secretary Orr and General Gabriel have made consistently this year. That is the fact that we believe the Air Force is in a better position than it has been in years. That is in no small part due to the support we have received from the congressional committees.

We thank you for that support.

In a way of backing up that remark, I would like to make a couple of comments.

PEOPLE PROGRAMS

I think when we look at the people programs in the Air Force today, we enjoy the luxury of having very high quality people. Ninety-eight percent of all our new enlistees today are high school graduates.

Very recently we had a month when we took in 4,200 new recruits and only four of those did not have high school diplomas.

RETENTION

Also, in the area of retention, a very vexing problem in the not too distant past, we are doing very well in this area today. In the critical experience group, 6 to 11 years, we are retaining three out of four pilots today.

You recall back in the late 1970's we were losing three out of four. All in all, we are in good shape so far as people programs are concerned.

FLYING HOURS

Our flying hours are up. Flying proficiency is up. I think in large measure that is due to the realistic training we are doing. I don't know if you have had the opportunity to visit Red Flag where we do some of our training.

Not coincidental with that, our accident rate is down. Last year was the best year in Air Force history so far as accidents are concerned, with less than two per 100,000 flying hours.

Senator RUDMAN. We must be doing right. In testimony last week from the Navy on their aviation we had exactly the same figure. So, I would suppose that is not completely coincidental.

Dr. COOPER. When you look at all the gloom and doom over statistics regarding spare parts and inferior quality of American weapons systems, that runs in the face of that.

We have excellent equipment. We have tremendously good logistical support systems. I think this is one small indicator that that is the case. In fact, we are running at about that flying safety level again this year.

So, it looks like, keeping our fingers crossed, we will again be down below two accidents per 100,000 flying hours.

Our ability to generate sorties is up. That is extremely important when you look at the issue of readiness. We have a capability today to generate a very high number of sorties.

Also, our airlift capability is improving. All in all, we are happy to report to you today that we do have a modern combat ready Air Force. That is not to say that we don't have problems. We obviously do have problems. We are going to discuss some of those with you today.

I just want to start off on a positive note to tell you that things are not that bad. Things are looking up. We look forward to improving even more in the future.

Our budget request this year is significant, no question about that. It is large. Then again, so are our needs.

AIRCRAFT R&D REQUEST

We are here today to testify on just one part of our budget and specifically, as you mentioned in your opening statement, the aircraft research, development and procurement portion of that budget.

Mr. Chairman, I had some more I was going to say, but in the interest of time, let me forego that. I think the points that I was going to make will be made by my colleagues.

If I could, I will just pass the ball to General Russ who will give you a brief overview of our request.

Senator RUDMAN. General Russ.

Thank you.

OPENING REMARKS OF GENERAL RUSS

General RUSS. What I through I would do is start to look at the entire budget and then we will break it down in manageable proportions to get to the subject in which we are interested today.

[Chart presentation follows:]

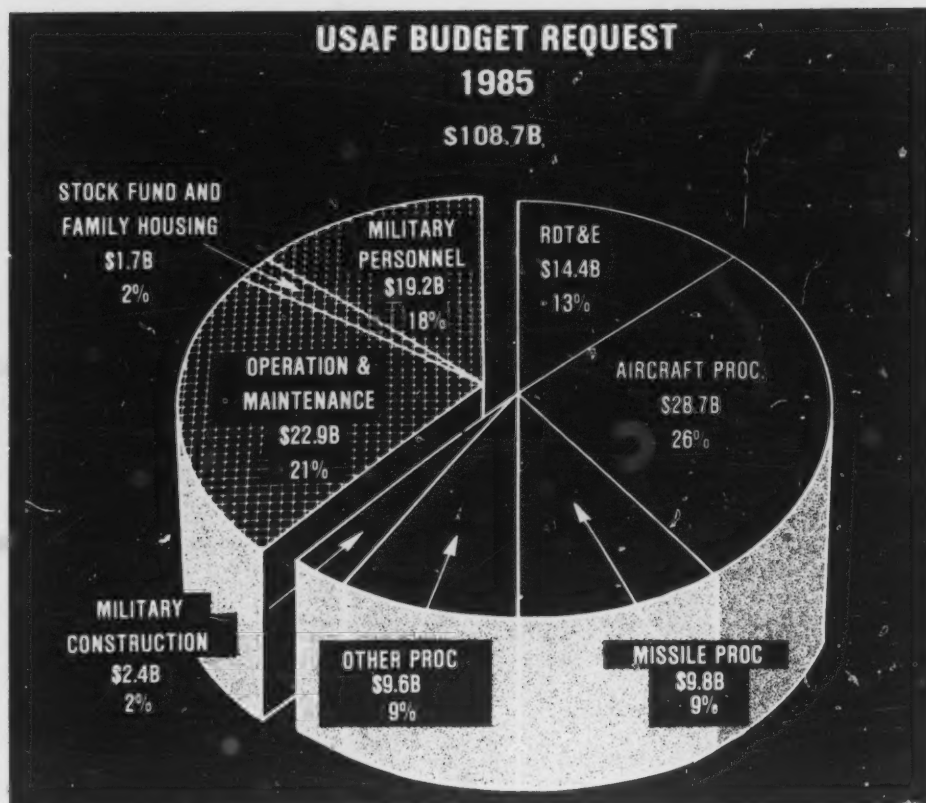


CHART 1

BUDGET REQUEST

General Russ. The 1985 budget request is for \$108.7 billion. The account is divided into two major elements, operating, and the investment account.

The operating accounts include our military personnel, our stock fund and family housing, our operations and maintenance account. That makes up approximately 40 percent of our budget.

In the investment side we have research, development, test and engineering, aircraft procurement, missile procurement, other procurement, and military construction. That makes up approximately 60 percent of our budget or some \$64.8 billion.

We will concentrate more today on our RDT&E and our aircraft procurement account.

AIR FORCE PROGRAM

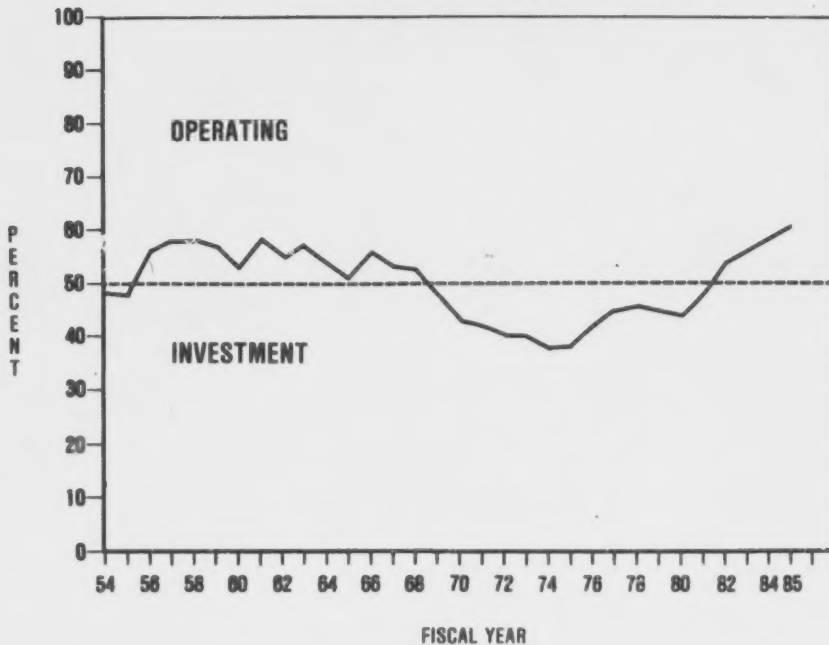


CHART 2

OPERATING INVESTMENT ACCOUNT

First let us take a look at the balance between our operating and our investment account. This chart shows the balance over the past 20 years or so between the two.

You can see that from about 1956 to 1969 our investment was a little over 50 percent of our budget. In 1970 it turned around and between 1970 and 1982 our operating accounts consumed a little over 50 percent.

Since 1982, the investment is again up over 50 percent. If you look at the investment account and break it down between procurement and RDT&E, you will see that the RDT&E has stayed relatively stable at about 15 to 16 percent throughout the time period.

Actually in 1985 it is about 13 percent. Procurement has gone up somewhat this year, and we think rightly so. It proves to us that our research and development efforts in the past have worked and we are now fielding more and better equipment in our forces.

AIRCRAFT PROCUREMENT BUDGET REQUEST FY 1985

(\$ IN BILLIONS)

AIRCRAFT PROCUREMENT ACCOUNT INCLUDES:

AIRCRAFT	16.2
SPARES	6.0
MODIFICATIONS	3.4
SUPPORT EQUIPMENT	3.1
TOTAL	<u>28.7</u>

CHART 3

CATEGORIES OF AIRCRAFT PROCUREMENT

But the aircraft procurement account is broken down into four major categories. New aircraft, spares which contain both the initial spares and replenishment spares, aircraft modifications, and the support equipment.

Those are the four areas and they total \$28.7 billion in this year's budget.



CHART 4

HISTORY OF AIRCRAFT PROCUREMENT

Now, the \$15.2 billion for new aircraft procures 271 aircraft this year. I thought it useful to look back and see what the history looked like on our aircraft procurement.

You see the high procurement rates back during the Southeast Asia conflict and during that period of time, or 5-year period from 1965 to 1969, we averaged approximately 1,000 aircraft per year. Then we dropped drastically for a 7-year period from 1971 to 1977 where we averaged about 175 aircraft per year.

It was up somewhat from 1978 to 1981 to about 370 aircraft per year. Since 1983 we have again started to build more aircraft.

I said in 1985 we are procuring 271 aircraft. I might mention of that 198 are fighter aircraft, the vast majority of them. As you will see later on in my discussions on the roadmap, we will need 260 to 280 fighters per year to maintain our force.

Now, the next slide shows you—

Senator RUDMAN. Would you go back to that for just one moment?

General RUSS. Yes, sir.

PROCUREMENT IN 1979 AND 1980

Senator RUDMAN. Being familiar with the budgetary history and outlays over the last 5 or 6 years, could you explain that rather unusual blip in your chart?

What did we do in 1979 and 1980 when we went down quickly? Was that A-10 procurement? What was that?

General RUSS. We were at that period of time procuring F-15's, F-16's, A-10's and A-7's. We terminated the A-7 line and subsequently we terminated the A-10 line. There were some other minor aircraft in there also.

That was the primary perturbation.

COOPER. There was one other factor in there as well. During that period of time we were co-producing the F-16 with the European consortium.

As you recall, we have a co-production arrangement with Norway, Denmark, Belgium, and the Netherlands. At that time we were up to 180 F-16's per year. We were in essence locked in on a multi-year buy of sorts at that point. As soon as we had completed our buy of 650 F-16's that rate dropped to 120 a year.

Senator RUDMAN. I am a great believer in the adage that figures don't lie, but liars figure. You could probably take that chart and make a strong case that this administration and the Congress for the last 3 years have totally neglected the Air Force.

Obviously you can't draw that conclusion, but that chart makes it look that way.

Dr. COOPER. I hope my opening statement dispelled that, Senator.

Senator RUDMAN. It certainly did. I understand you were at the tail end of the production and there had been no advance procurement for a number of things and it all dropped off. You look at those years in there. It looks like in 1980 everything went down the tube.

General RUSS. Yes, sir. On any of these sort of analyses you are the victim of how many production lines you have available at the time and what you are buying.

As an example—I would not want to give the wrong impression—and say we ought to go back to, say, a thousand airplanes a year as we did during the Southeast Asia conflict.

It is important to note we did have the production lines available at that time that allowed us to produce sufficient numbers of aircraft when the country needed the additional aircraft.

AIRCRAFT PROCUREMENT BUDGET REQUEST FY 1985

	NUMBER OF AIRCRAFT
STRATEGIC	
B-1B	34
FORCE PROJECTION	
C-5B	10
C-20A	3
KC-10A	8
MC-130H	2
THEATER FORCES	
F-16	150
F-15	48
TR-1	4
OTHER	
T-46A	10
RANGE CONTROL (C-12 TYPE)	2
TOTAL	271

CHART 5

STATUS OF 271 AIRCRAFT

I talked about those 271 aircraft. This chart breaks those down for 1985. You can see in the strategic arena we are buying 34 B-1B's.

In the force projection area we are buying 10 C-5B's and 8 KC-10's for mobility purposes, buying 3 C-20A's which are needed to replace our C-140's and we are buying MC-130H's for our special operations mission.

In the theater forces we are buying 198 fighters—

Senator RUDMAN. What is the C-20A?

General RUSS. That is the Gulf Stream three, sir.

In the theater forces we are buying 198 fighters and we are procuring 4 high altitude reconnaissance airplanes.

Under the "other" category we are producing the next generation trainer designated the T-46A, which will replace the T-37, and two range control aircraft.

What I would like to do now is turn this over to General Gorton who will discuss the strategic and force projection portions of the procurement budget, sir.

[The joint statement of Dr. Cooper and General Russ follows:]

JOINT PREPARED STATEMENT

DR. THOMAS E. COOPER AND LT. GEN. ROBERT D. RUSS

MR CHAIRMAN AND MEMBERS OF THE COMMITTEE:

It is a pleasure to report to you on Air Force aircraft procurement and RDT&E for fiscal year 1985.

The Air Force budget request for Fiscal Year 1985 represents a realistic assessment of the programs necessary to respond to the Soviet threat. The request was constructed with considerable deliberation regarding a balance among required military capability, program priorities and available resources. Our objective is to maintain quality people and a quality force. After people, our priorities are to modernize our strategic forces, to improve the readiness and sustainability of our forces, to enhance our force projection capabilities, modernize and expand our theater forces, and to improve our capabilities in space.

Today's investments in research, development, test and evaluation, procurement and military construction provide tomorrow's force structure growth and capability. In Fiscal Year 1985, about 60 percent of our total request is for investment programs. To maximize the return on this investment, the Air Force has several management initiatives underway to enhance program stability, control cost and revitalize the industrial base. By managing our defense dollars wisely, we benefit not only from lower acquisition cost, but also lower life cycle cost. Of special importance to our future is our investment in the technology base. Opportunities for applying technology, such as very high speed integrated circuits and laser beams, to military capability must continually be researched and developed if we are to maintain technological superiority in the future. Continued support for our technology base programs will assure a prudent investment in our future defense against Soviet military aggression.

Air Force people continue as our first priority. We have the best people in the world doing the most important task we can ask them to do--protect our national security. These men and women do the job we ask of them, and do it well. In return, we must continue to treat them equitably and fairly if we are to retain them and if we are to recruit qualified replacements for those we lose.

Our number one mission area priority is strategic forces. This is a fundamental element of the Administration's plan to achieve true arms reduction through negotiation, not intimidation. For the Air Force, the objective is clear--to improve our strategic command, control and communications systems and to modernize the intercontinental ballistic missile and the bomber legs of the strategic Triad. Our current forces are old. The newest intercontinental ballistic missile, the Minuteman III, entered the force over 10 years ago and our newest heavy strategic bomber, the B-52H, has been in the force over 20 years.

As the most critical element, strategic command, control and communication holds the highest priority within the President's Strategic Modernization Program. The command, control and communications link to the National Command Authority is vital, and our programs focus on communication links which are survivable in all scenarios. Such programs as MILSTAR and the Ground Wave Emergency Network will greatly improve our ability to communicate with our strategic forces and enhance our deterrent capability. Strategic command, control and communications forms the capability bridge between offensive and defensive forces.

In offensive forces, the Peacekeeper is being developed according to the Presidentially-approved Scowcroft Commission recommendations. It is urgently needed to strengthen our deterrent posture. We are now in full scale development and are planning an initial operational capability in late 1986.

We are also developing a small intercontinental ballistic missile to complement the Peacekeeper and sustain our nuclear deterrent capability in the 1990s and beyond. We are now investigating and assessing alternate technologies in a system definition phase. Design selections for the small, single warhead missile, its transporter and the operational mode will be made by early 1987.

The B-1B remains the centerpiece of the modernization of the bomber leg of the strategic Triad. The manned bomber is the most flexible of strategic weapons. For the near term, the B-1B, in conjunction with the B-52s, Air Launched Cruise Missiles, and targeting sensor enhancements, will provide a powerful, accurate, and reusable weapon delivery system. For the far term, the B-1B, the Advanced Technology Bomber, and the Advanced Cruise Missile, with their designed-in low observables technologies, will comprise the bomber leg of the U.S. strategic Triad for the next 30 years.

Strategic defense programs are designed to upgrade aging surveillance and warning systems and expand our capability to meet evolving atmospheric, missile, and space threats. We are participating in structuring a program to support the President's Strategic Defense Initiative to counter the Soviet ballistic missile threat with measures which are defensive, rather than retaliatory. The Initiative integrates many technology programs including surveillance, acquisition, tracking, kill assessment, and directed energy weapons. Initial studies on strategy and technology have been completed and a long term research and development program is being defined.

When our forces are well equipped, ready for combat and capable of conducting sustained combat operations, then our deterrent capability is enhanced. During the past three years, we have been redressing the low defense spending of the mid-to-late 1970s that resulted in a major reduction of readiness and sustainability through deteriorated physical plant, cutbacks in combat crew training, and large backlogs of equipment and facility maintenance. Our Fiscal Year 1985 budget request continues the trend to correct these deficiencies. This year's program emphasizes spare parts, munitions, fuel, support equipment and depot maintenance capability. We are also continuing the implementation of simulation to maintain weapons operation proficiency, and are requesting funds for sufficient wartime consumables and common ground equipment to underpin a ready and responsive force.

Our next mission area priority is enhancement of our force projection capabilities. Mobility forces are essential to our force projection strategy because they provide the link between force structure and combat capability. During critical early phases of a conflict, only airlift has the responsiveness and flexibility to meet mobility requirements in the days or weeks before the first sealift deliveries begin.

The evolving threat and the growing capability of the Soviets to attack with little warning have pushed demands for airlift well beyond the capabilities of our current forces. A rapid and sufficient airlift capability could prevent substantial losses and avoid an escalation of hostilities. Even with the enhancements planned

for our existing forces, we will still have serious shortfalls in our capability for intertheater airlift of outsize, oversize, and bulk cargo.

Our overall airlift enhancement strategy is divided into three parts: improvements to existing forces, near term capability increases, and attaining the long term level of capability recommended by the Congressionally Mandated Mobility Study. Programs ongoing today to enhance our mobility posture include the modification of the C-5A wing, procurement of the C-5B and KC-10, modernization of the KC-135, building the Civil Reserve Air Fleet (CRAF) Enhancement Program and development of the C-17.

Modernizing our theater forces is the next mission area priority. To meet the challenges and threat confronting us throughout the world, our forces must be capable, flexible, ready, and sustainable. Our program to respond to this threat is based on reaching a balance between readiness and sustainability and modernization of our theater forces.

Our tactical air forces must be able to achieve air superiority, provide offensive air support to friendly ground forces, and interdict and destroy key targets. To quickly achieve and maintain air superiority, our forces must have aircraft that can detect and destroy numerically superior and sophisticated Soviet fighters and bombers. This requires effective avionics, weapons, and propulsion systems. Similarly our forces must have the aircraft and weapon systems that can operate effectively in an air-to-ground role at night and during adverse weather with minimum exposure and losses.

We have developed a Munitions Acquisition Plan to ensure we procure the proper mix of precision guided and unguided weapons. We have also developed a Tactical Fighter Roadmap to guide our fighter procurement. The roadmap includes the acquisition strategy for the required numbers of fighters, the right mix of fighters, and the quality improvements needed for our fighters.

The focus is on modernizing and expanding our existing force structure of F-15 and F-16 fighters and fielding a night and all-weather capability in both avionics and munitions. Our fighter enhancement programs include procurement of a more durable engine, a dual role fighter, and quality improvements such as the Advanced Medium Range Air-to-Air Missile and the Low Altitude Navigation and Targeting Infrared System for Night. For the 1990s, we are developing an Advanced Tactical Fighter that will ensure our qualitative edge in air-to-air missions.

Modernizing our theater forces also includes the deployment of the Ground Launched Cruise Missile in Europe to help correct the imbalance in capability between NATO and the Warsaw Pact. In addition, it includes our efforts to reestablish and maintain a credible chemical deterrent base on a strong chemical defense and an adequate retaliatory capability to deter Soviet use of chemical weapons against the United States or its allies.

Space systems are a vital element of our forces. Many of our missions require the global coverage and timely information which can only be provided from space systems. Because space systems enhance the effectiveness of our forces, we are improving their surveillance, communications, navigation, and survivability capabilities. We highlight our efforts in space as part of our strategic discussion because the space environment is significant to our strategic posture.

Congressional approval and funding of the programs in our Fiscal Year 1985 budget request will demonstrate our resolve to strengthen our national defense and protect our interests worldwide.

OPENING REMARKS OF GENERAL GORTON

Senator RUDMAN. General Gorton.

Dr. COOPER. I don't think we introduced General Gorton. General Gorton is General Russ' Director of Operational Requirements.

Senator RUDMAN. Very well.

General GORTON. I have a number of programs, both in the strategic force area as well as airlift and other general support areas to cover today. I have selected some programs that we think would be of interest to the committee in particular.

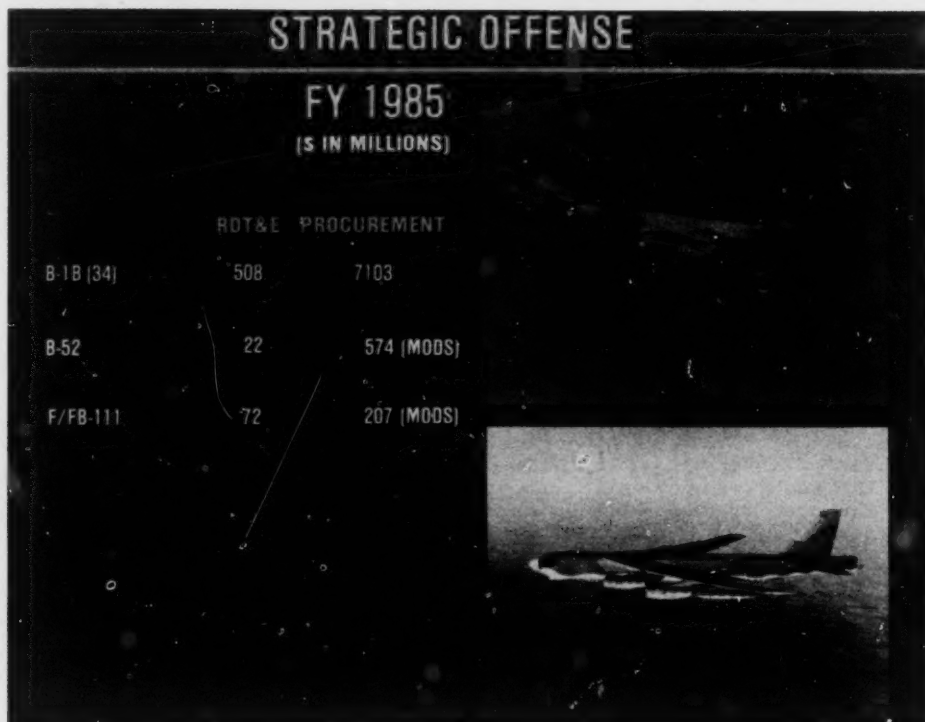


CHART 6

B-1B PROGRAM

The remainder of the programs, time permitting, we could discuss, but we could submit them for the record.

Let me start off first with the B-1B program. As you know, the B-1B is a multipurpose weapon system, both conventional and nuclear.

As highlighted on this slide, it has an excellent capability for penetration in the strategic role well into the 1990's.



CHART 7

B-1A TEST AIRCRAFT

You will note that we reflect that the B-1B No. 1, will be rolling out in 1985. What we have been using at Edwards are two of the four original B-1A's as test aircraft.

B-1B**STRATEGIC MULTIROLE BOMBER**

**PERFORMS THE MISSIONS OF CONVENTIONAL BOMBER, CRUISE MISSILE
LAUNCH PLATFORM, AND NUCLEAR WEAPONS DELIVERY SYSTEM**

CAPABLE PENETRATOR WELL INTO THE 1990s

B-1B NUMBER ONE ROLL-OUT IN FY 85

CHART 8**ROLL-OUT DATE OF B-1B**

What you see here is the B-1A. Shown is the contract roll-out date in March 1985 for the first B-1B. In actuality, we intend to roll the first B-1B out considerably ahead of schedule in the September 1984 timeframe.

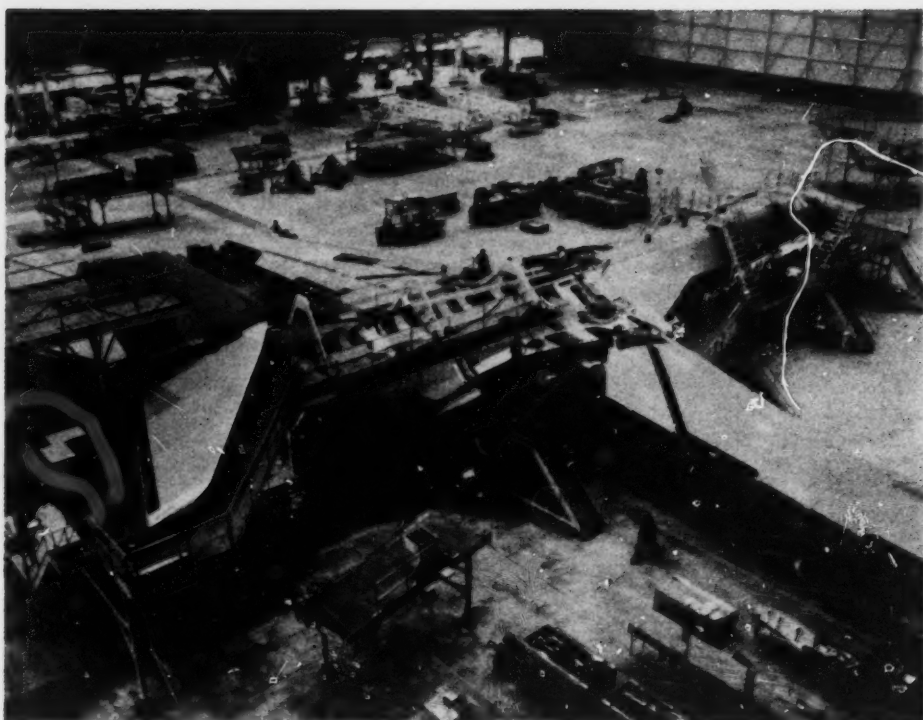


CHART 9

FIRST B-1B

Let me show you a picture of the first B-1B. This is a picture of the first B-1B on the floor at Palmdale in California with all the major components, engine nacelle, fuselage and the wings. The first B-1B that will be rolling out in the September 1984 timeframe and we hope to fly it before the end of the year, considerably ahead of schedule.

I guess that is the bottom line of the B-1B program at this time.

There has been intense interest on the part of the administration and the Congress in assuring that this vital program comes out on schedule and on cost and within the \$20.5-billion ceiling.

We are confident at this stage of the game we will be able to achieve that program within that ceiling. Early on in the program we are a little bit ahead.

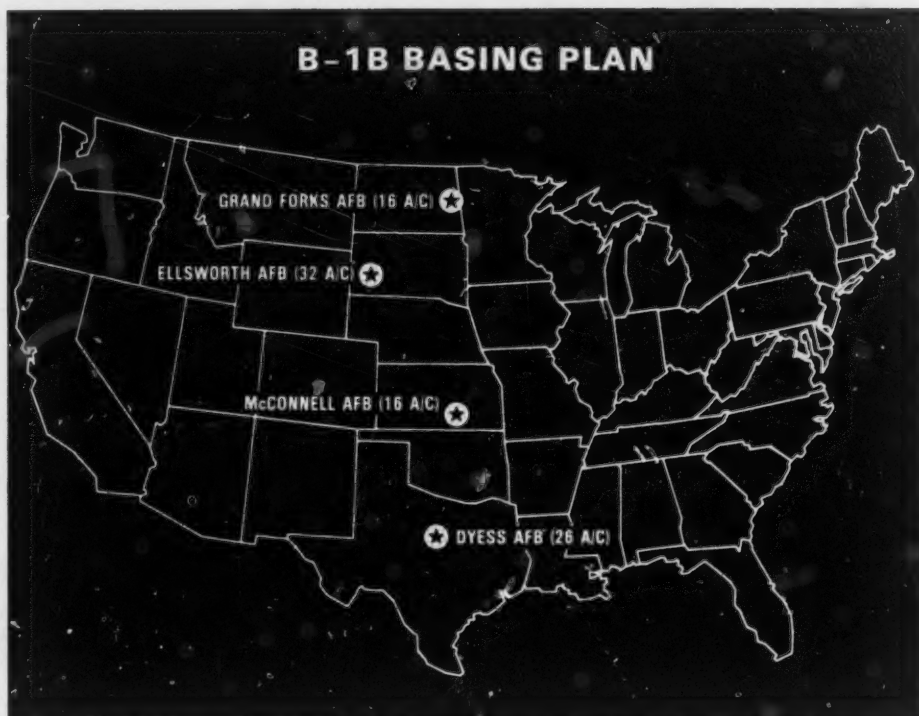


CHART 10

B-1B BASES

One of the other things that has happened again is the announcement of the B-1B bases. Dyess is going to serve as both an operational base for one of the operational squadrons as well as a training base.

The other three bases recently announced are McConnell, one squadron; Ellsworth, two squadrons; and Grand Forks, one squadron.

These bases were not selected arbitrarily. One of the principal factors associated with base location was the SLBM threat from either coast to provide maximum warning time for launch under attack.



CHART 11

TOTAL B-1B BUYS

This is a more detailed look at the B-1B program. As General Russ pointed out, our 1985 President's budget requests a buy of 34 aircraft. Previous quantities total 18 aircraft.

The 508 RDT&E bill as reflected in the 1985 budget. You can see we are beginning to tail down. This is a very ramped program. It is a very steep program. We are beginning to tail off in RDT&E.

The major efforts really involved in aircraft, principally the whole program, are in terms of flight test. We are beginning to pick up our flight test schedule. A lot of the RDT&E that goes into procurement is beginning to ramp up now.

Procurement concludes in fiscal year 1986 with the final buy of 48 aircraft. We are about 50-percent complete on this program right now. Should the fiscal year 1985 budget be approved as requested, we will be about 80-percent complete on the B-1B program.

That is a brief resumé of the B-1B program. If there are any questions, I will be happy to entertain them.

Senator RUDMAN. I assume one of the things that has contributed to this being on time and on budget is the insistence of the Secretary of Defense and the Air Force that the design would be frozen, that you would not tinker with it and keep adding bells and whistles along the line, you have frozen that design to the extent that there are add-ons?

General GORTON. We have indeed. The ECO count is much smaller on this aircraft, about 6 percent. Normally that is 10 percent. We have a program to make sure there are no creeping requirements that fall into it, a lot of stringent effort and review by the Secretary of Defense, Secretary of the Air Force and, of course, the Congress.

Senator RUDMAN. I have a couple other questions on the B-1, but they are of a classified nature.

BOMBER MODERNIZATION PROGRAM

Dr. COOPER. Senator, I would just like to make a comment about our overall bomber modernization program. We really couldn't be more pleased with it than we are today. As you recall, there are three facets to it. One facet is to convert the B-52 force to a stand-off carrier and also to a conventional role. We are doing that with the B-52G's and H's. They will be equipped to carry the cruise missile. The second facet is the B-1B and, as General Gorton has mentioned, our plans are to buy 100 B-1B's. That should satisfy our near and mid-term needs. These efforts are to be followed by the advanced technology bomber. About all we can say about the advanced technology bomber in open session is that it is moving apace. It is on the identical schedule it was on at this time last year when we briefed the committee. We are still planning for an early 1990's IOC and the program is fully funded.

Senator RUDMAN. Let me ask one question at this point on the B-1, General Gorton.

There is an indication in the last SAR of an increase of 3 percent in the avionics systems, about \$827 million, I believe.

Is that correct?

General GORTON. There was an additional \$800 million in integration of both CSRL and cruise missile. That was the decision made by the Congress which increased the RDT&E funding in that particular area, if that is what you are referring to.

Senator RUDMAN. That does not affect your ceiling?

General GORTON. That is correct, sir. It is within the \$20.5 billion (constant 1981 dollars).

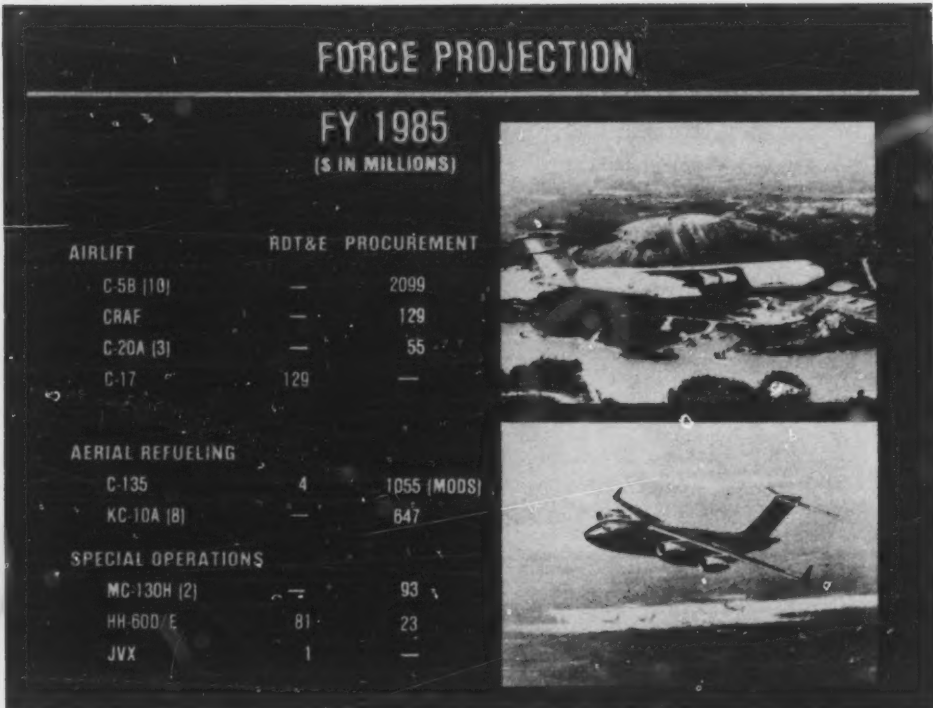
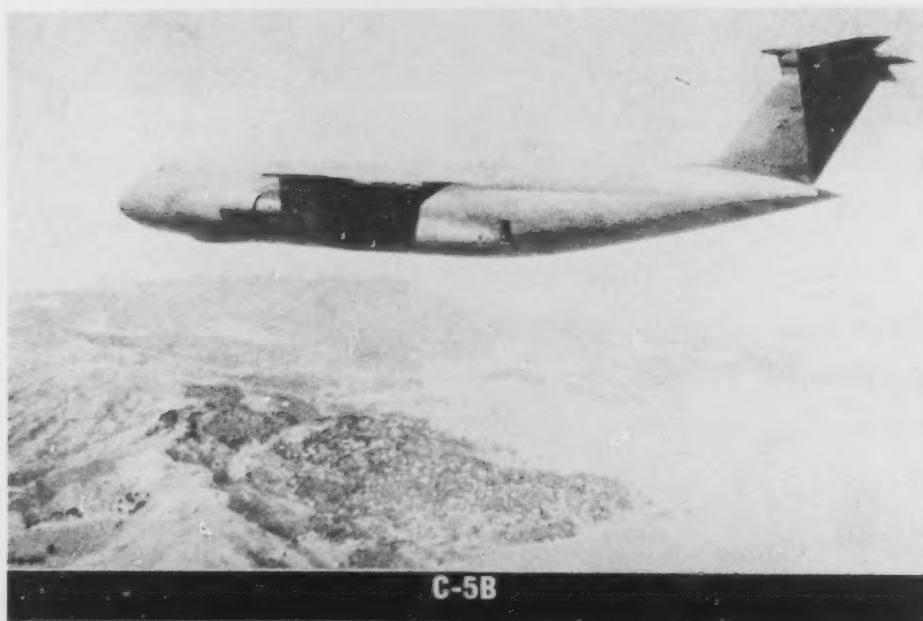


CHART 12

FORCE PROJECTION

Let us move to force projection. I will be covering this force projection and airlift, the C-5B and the C-17. I will start off with the C-5B.

**C-5B****CHART 13****C-5B AIRCRAFT**

That is a firm fixed-price contract with Lockheed-Marietta for 50 aircraft. This aircraft will be added to the 77 C-5A's which are in our force which, by the way, are being modified to increase the strength of the wing and to increase the flight hours up to 30,000.

This aircraft will have modified wings and minor changes in the cockpit configuration. No RDT&E is associated with this program. We are introducing into the new aircraft some of the new radios already being introduced in other aircraft as well as the upgraded engines that will be going into the overall C-5 fleet.

This aircraft will add 7.5 million ton-miles per day in the inter-theater route and it is a superb carrier of outsize cargo over long distances.

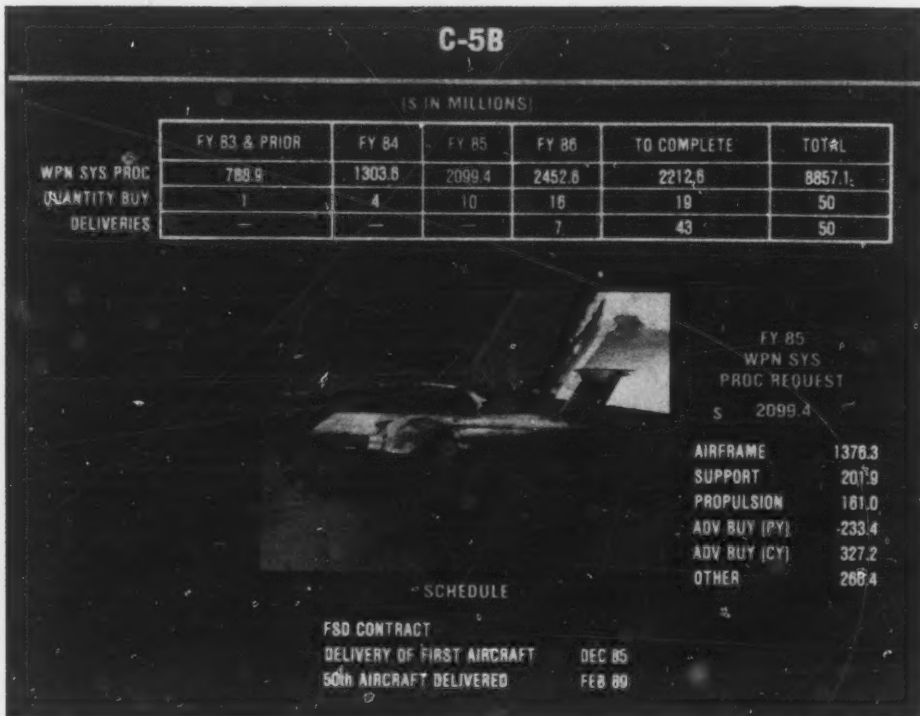


CHART 14

INTERTHEATER USE OF AIRCRAFT

The buy, as I said, was for 50. We are requesting in the 1985 President's budget a quantity of 10. As I said, there was no RDT&E. So, this is all associated with procurement.

Dr. COOPER. Did you say intra or inter-theater?

General GORTON. I said inter. That is from here to there, not short haul. Although you raise an interesting point, what is intra and inter-theater.

From the southwest Asia area, Cario to Daharan, it is intra, but it is a long haul.

Moving down to the C-17, if there are no further questions on the C-5, sir—

Senator RUDMAN. I will probably have a question or two, but go ahead.



CHART 15

EFFORT DEVELOPMENT OF C-17

General GORTON. The C-17 has been a low level of effort development over the past few years. It is the result of the competition out of the CX program.

Currently, we are requesting in this budget to enter into full-scale engineering development in the year 1985. It has capability to haul the same outsize cargo that the C-5 has. It is a smaller aircraft, about the size of the C-141.

We look at this aircraft as having the ability to increase our intra-theater as well as our intertheater capability, and not only that, but provide a substantial direct delivery capability from the CONUS to the tactical bases where we would have to deploy forces.

In light of this, as you well know, this program has been looked at closely by the Secretary of Defense and was recently revalidated by the Secretary of Defense to Congress.

CAPABILITY OF C-17

We have been in lock step with the Army on the C-17. Recent changes in the Army division characteristics, for instance, the light infantry division. This airplane is ideally suited for deploying those light infantry divisions.

We can take them directly from their CONUS base locations and deliver them right to the theater. For instance, if there had been a light infantry division in existence during Grenada and we wished to deploy that division, we could have taken it right into the airport on the island.

In terms of funding request, we are moving into full-scale engineering development in 1985. That is our request this year.

As you well know, this committee has been very supportive of the C-17 with an additional appropriation last year that has helped us to continue our low-level development.

C-17



**OUTSIZE, INTER/INTRA THEATER AIRLIFTER
COMPLEMENT AND MODERNIZE CURRENT AIRLIFT FORCES
MINIMIZES LIFE CYCLE COST
FULL SCALE DEVELOPMENT BEGINS IN FY 85**

CHART 6

ENGINEERING DEVELOPMENT OF C-17

We would like to move into full-scale engineering development for this system this year. It is ramped with, in terms of funding profiles, the C-5B contract which is beginning to tail off at this particular point.

With that, Senator Rudman, I am ready to answer any questions.

C-17 AND C-5B AFFORDABILITY

Senator RUDMAN. I think I should address this question to General Russ and Dr. Cooper.

You are requesting \$129 million to start full-scale development of the C-17 concurrent with procurement of the C-5B, although I understand the profile of the expenditures for the C-5B does start down at a point here.

Nevertheless, there is a concurrency here. The \$129 million essentially would commit the Air Force to full-scale C-17 develop-

ment which is going to be about a \$40 billion procurement program.

The question I have, which you may or may not want to answer this morning, but I expect you may—I emphasize “may,” for you will have to answer it for us at some point here—in an affordability crunch, which of these two programs does the Air Force want us to fully fund, keeping in mind that the C-5B is on the way down the line?

Dr. COOPER. Let me take a whack at that and General Russ can respond as well.

We are in somewhat of an affordability crunch right now. There are a lot of tears on the table over in the Pentagon, as you probably know, with the cut drill we are going through.

I can tell you that both programs are preserved. We think they complement each other. The C-5 addresses the near term need and the C-17 addresses the far term need. We don't think the concurrency in the two programs is large.

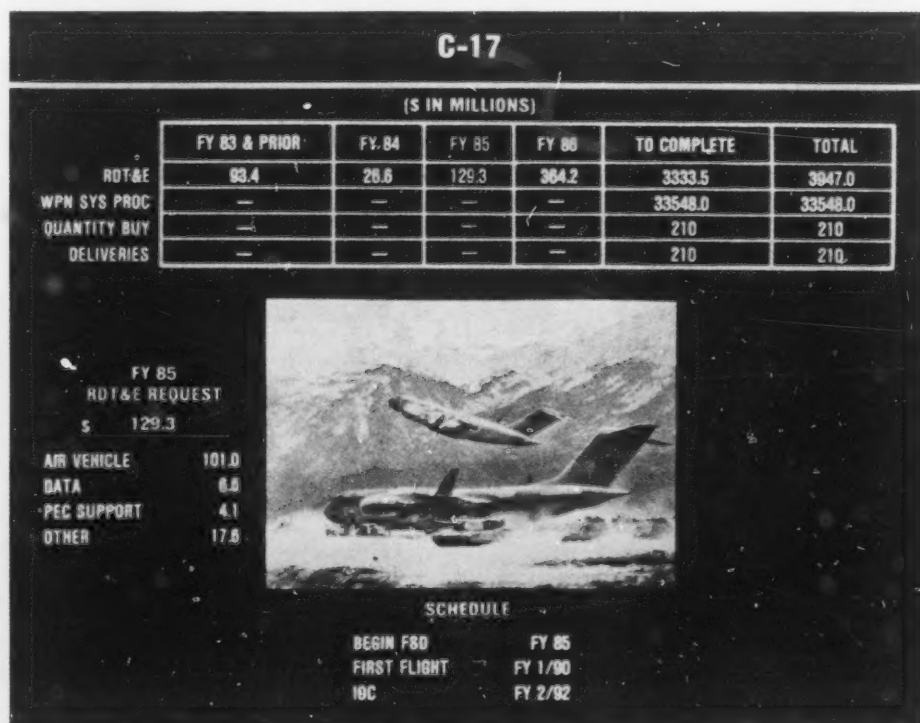


CHART 17

C-17/C-5 AIRLIFT MASTER PLAN

While you see R&D dollars there, we really don't start to ramp up on procurement on the C-17 until the C-5 is procured. So, we don't look at them as competitors. Therefore, it is not an either/or situation. We look at them as complementary. They are all part of

our airlift master plan to address that total requirement of 66 million ton-miles per day.

We don't see them as playing competitively with each other. Obviously, if the cuts become very, very large, everything would be out on the table, but we are nowhere near that point at this point in time. I see them as complementary.

General Russ. I might just add to that, Senator. It is kind of like picking between your children. You want them both. Certainly you don't want to be in a position where you have to divorce one of them or get rid of one of them.

We tie the requirement for the C-17 and C-5 to the forces that we have to lift, the U.S. Army, the U.S. Marine Corps. As long as those forces are there, it doesn't make any sense to us not to have the ability to take them to war.

So, we believe it is a high priority. If the fact, the Army reduces the numbers of divisions and the Marines reduce the amount of equipment and number of vehicles, then we could reduce the requirement.

Until then, we feel strongly both of these programs are high priority and in all probability would not be touched unless we had some absolutely drastic sort of changes in the defense budget.

OUTLAYS FOR C-17 AND C-5B

Senator RUDMAN. I make the observation as far as concurrency is concerned, looking at outlays in fiscal year 1986 and fiscal year 1987, there is quite a convergence between the two programs in terms of substantial outlays.

Together, just adding quickly here, in fiscal year 1987 it looks to be about \$4 billion between the two. I asked the question only because I do not know, nor does anyone know, what the final number is going to be.

I hear people in the House talking about freezing the defense budget. The leadership compromise with the President here on this side is 6½ to 7½ percent, a \$14 billion net reduction.

Obviously, if that is the figure, and I expect we can accommodate a lot of this if that should not be the figure, we have very difficult choices to make.

I would echo what the chairman of this subcommittee has said repeatedly: We are looking for guidance as to what you folks think you want to do. I understand fully the tactical and strategical difference between the C-5B and C-17.

There are some arguments that the C-5B will meet the role. I won't carry on that debate today. I don't know whether that is right or wrong.

The fact of the matter is if we are forced to make a change here under the worst case scenario, I would hope that as we get into this later in the spring that we can expect guidance and more specific answers to the question I just asked.

I can understand your reluctance to not want to answer it now, but I am simply saying, depending on what the numbers are, it may be necessary to answer it. We are trying to do something responsible here.

You recall 1 year or 1½ years ago we were in a situation where we did not get the cooperation from the DOD that we wanted and finally did some things which maybe were not the right things to do, but that was not our fault. That was lack of cooperation from the people who use the equipment.

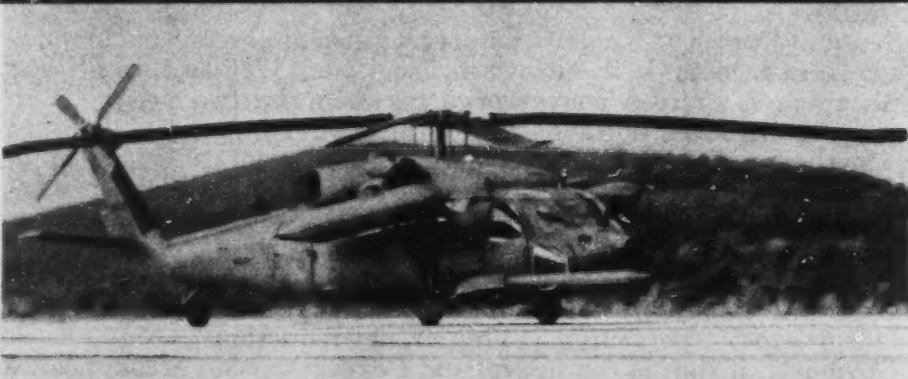
I would only commend you to the necessity of keeping all sorts of alternatives in your mind. As I know you folks, I expect that you have them. I do not ask you to put them on the table this morning, but it may be necessary.

Dr. COOPER. As a final point, let me once again stress that we view the C-5 as a near term requirement. It meets a near term shortfall.

The C-17 is our airlifter of the future. That is how they complement each other. But we understand if you get to the point where you have 10 yards of requirement and 7 yards of budget, something has to give.

General GORTON. I will take a look at one final program.

**COMBAT HELICOPTER MODERNIZATION
(HH-60D/E NIGHT HAWK)**



- PRODUCT IMPROVED VERSION OF ARMY UH-60A BLACK HAWK
- DESIGNED FOR LONG RANGE, LOW LEVEL AROUND THE CLOCK RESCUE OF DOWNED AIRCREWS AND SPECIAL OPERATIONS
- D MODEL WILL BE ALL WEATHER AND E MODEL WILL NOT
- FLIGHT TEST OF FULLY EQUIPPED HH-60D/E STARTS IN FY 85

CHART 18

HH-60 HELICOPTER

The HH-60 helicopter. This is an Air Force variant of the UH-60 model that the Army is procuring in numbers as well as the Navy Seahawk.

This aircraft is to be procured principally to provide replacement aircraft for a very aging and expensive helicopter force in our air rescue force.

I would point out that we are reflecting the HH-60D and E variety of aircraft. Last year you may recall we asked for 243 HH-60D models. These are aircraft that would have a full adverse weather/night capability. That would mean a FLIR and terrain following radar.

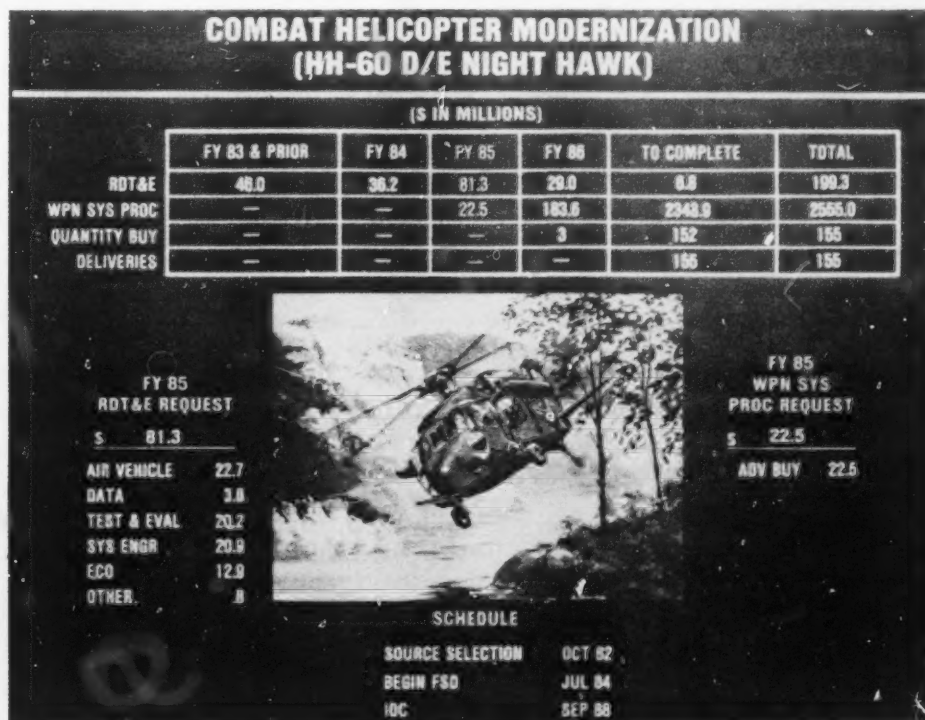


CHART 19

PROGRAM RESTRUCTURING

In this budget request before you we have restructured that program to 155 aircraft split up between HH-60Ds, the same aircraft we had in the budget last year, with the full all-weather capability, and E model which does not have a night/adverse weather capability.

I would be less than honest with you if I said this is the way this program is going to remain. Even before the President announced an effort to reduce the deficits and defense playing a vital role in that, we were looking at restructuring this helicopter program based on the funding profile that is shown here.

We are in the process of debating that internally within the Air Force now and with the Secretary of Defense. We believe that we will be reducing numbers and going to even a scaled-down version of this helicopter.

I can't give you the specifics on that right now, but my bottom line is that this program is being scrubbed down to meet a basic requirement for air rescue in the near term. It is a major area that we have the greatest shortfall in.

Old helicopters are hard to maintain and we need to be able to get a capable helicopter out to rescue our air crews in the out years.

HELICOPTER BASING

Senator RUDMAN. How are these normally based? Are these based at forward areas on the coast?

General GORTON. They are based on a number of locations. Combat rescue and special operations forces are integrated under CINCMAC, Military Airlift Command. It is a worldwide basing of our combat rescue helicopters.

Senator RUDMAN. Is there an enormous difference in the cost of the D and E?

General GORTON. There was substantial difference in the cost of the D and E. I might start you at the baseline which is the UH-60A which runs in the neighborhood of \$6 million, a little bit over \$6 million on a rather large buy for the Army.

We were looking at a helicopter full up with night/adverse weather capability in the D model upward of \$19 million. The more we looked at that, it was clear that that was not affordable, but we needed to get our air rescue force replacement helicopters.

What we are looking at now is taking the basic UH-60 airframe, the A model, using the engine that is in the Navy version of that as an increased thrust engine, putting in additional fuel bladders and giving them an air refueling capability plus a winch which is necessary for combat rescue.

We have not fully priced that program out, but it will be substantially less than the HH-60D or E.

NIGHTTIME OPERATION

Senator RUDMAN. Will it have at least a minimum amount of equipment to allow it to operate at night and in all-weather conditions?

General GORTON. It will have the ability to operate at night in VMC condition if we use night goggles. It is a limited capability. We will be looking at doing just that.

Senator RUDMAN. I understand it is a high cost program, but to end up with a rescue helicopter that does not have that ability is to severely limit its utility.

General GORTON. It will indeed. We will be looking at starting a development line as to what we can do in the out years to possibly modify some portion of that fleet with an upgraded FLIR technology which, as you are well aware, is burgeoning.

Hopefully we will be able to achieve all-weather capability or at least night low altitude capability in the out years.

Dr. COOPER. A few of the tears on the table in the Pentagon are the result of this potential restructuring, I can assure you.

General GORTON. That completes my portion of the briefing. There are a number of programs that I will submit for the record.

Dr. COOPER. I think we can continue in open session with General Monahan.

Senator RUDMAN. Why don't we stay in open session as long as we possibly can. If you feel we have to close it at some point, we will.

Dr. COOPER. This is Gen. George Monahan who is General Russ' Director of Development and Production.

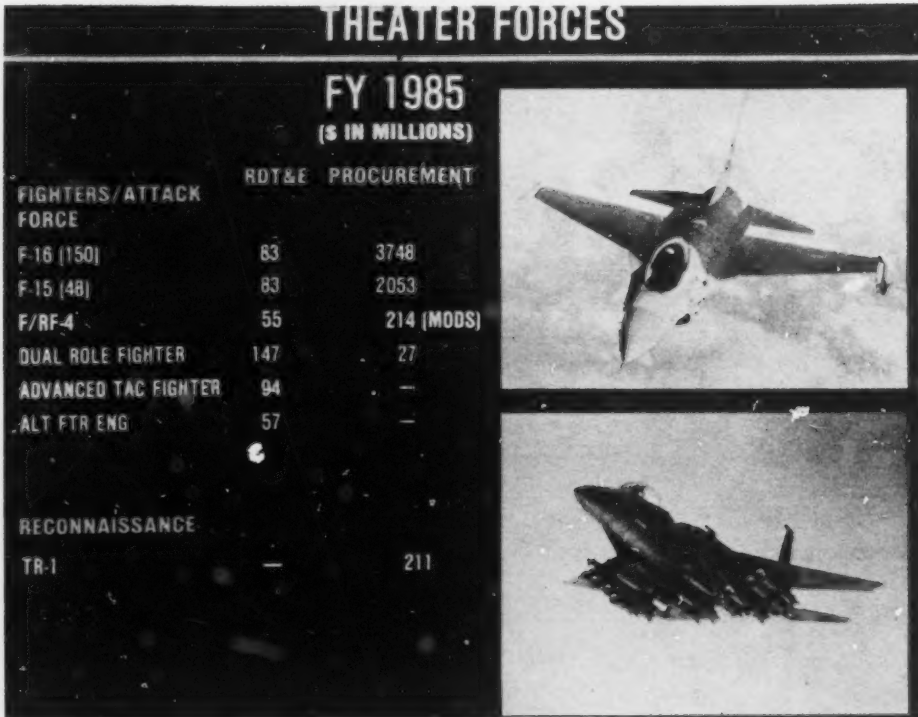
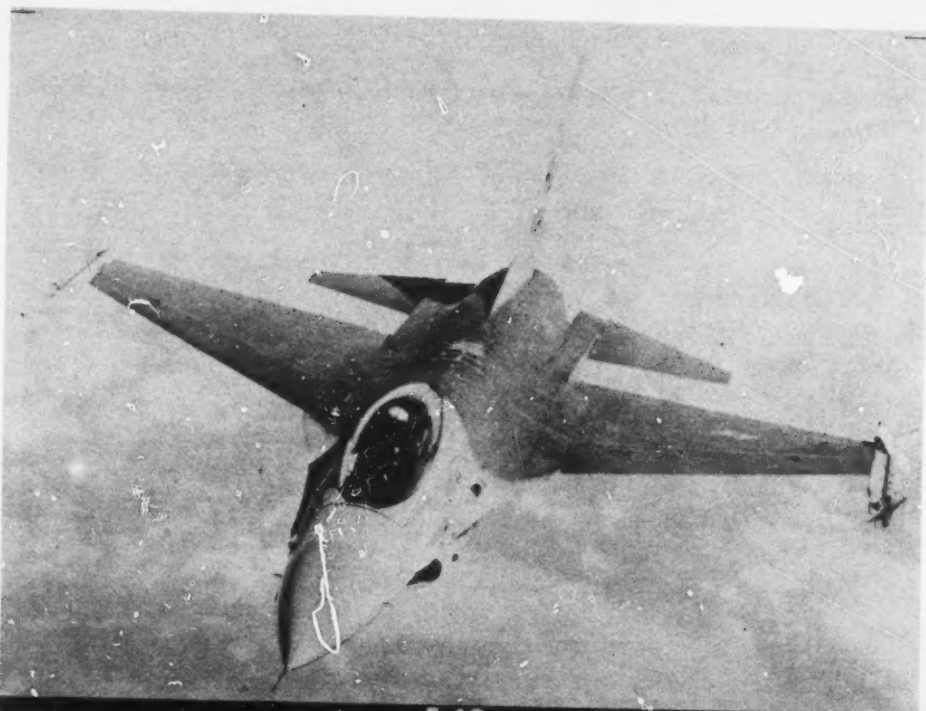


CHART 20

THEATER FORCES PROGRAM

General MONAHAN. Mr. Chairman, I want to discuss this program with you today in the theater forces. The dual role fighter portion of the briefing is classified. I will have to leave that until later.

I will also talk about the alternate fighter engines for the F-15 or F-16.



F-16



MULTINATIONAL SWING FIGHTER
 PROVEN AIR-TO-AIR AND AIR-TO-GROUND PERFORMANCE
 REPLACES AGING F-4s AND MODERNIZES THE AIR RESERVE FORCES
 FY 85 COMPLETE FY 82-85 MULTIYEAR PROCUREMENT AND REQUESTS
 ADVANCED PROCUREMENT FOR FY 86-89 MULTIYEAR PROCUREMENT

CHART 21

F-16 FIGHTER AIRCRAFT

The F-16 is rapidly becoming the main stay of our fighter forces. We have eight operational wings around the world. Also, we have a National Guard unit and Air Force Reserve unit.

It is a multinational airplane now operated by 10 countries worldwide and we have others that we expect will be coming on board the program here very soon. It is replacing the F-4 and we are just now completing in fiscal 1985 a multiyear procurement of 480 airplanes.

We will initiate a second multiyear procurement in fiscal 1986. We plan 150 airplanes next year and then in fiscal year 1986 we are planning to jump up to 216 per year and follow that out for the remainder of the procurement, eventually getting up to a 2,651 procurement.

In this year we have budgeted money that takes care of all the termination liability associated with the multiyear procurement which we will begin in fiscal year 1986.

You will find some funds in this year on F-16 higher than normal—the price of the airplane has not increased—because of the multiyear procurement that we are initiating here.

Also, funds we have for the competition engine were in the F-16 line. Since we have made that competition announcement, we are now moving those funds out of the F-16 line spreading them between the F-15 and F-16.

Because of the alternate fighter engine competition and also because of the dual-role fighter competition, we are revising the figures here. The revised figures will be coming over from the Department of Defense shortly.

Are there any questions?

F-16 MULTIYEAR PROCUREMENT CONTRACT

Senator RUDMAN. Maybe we don't have the figures in the subcommittee, but there seems to be some anomaly in the figures. You are proposing a 1986 to 1989 multiyear procurement contract for a core program of 720 F-16s?

General MONAHAN. Right.

Senator RUDMAN. With options for an additional 144 aircraft. The potential savings from the 720 aircraft program is \$358 million, which is about 8½ percent and, only \$227 million which is a 4.6 percent savings for the larger buy.

My first question is: Why would you prefer the larger buy?

Second, how can we save \$131 million less when buying 20 percent more aircraft.

Are those figures right?

General MONAHAN. Those figures are right.

Senator RUDMAN. I would like that explained to me. If you can explain that to me, you probably deserve a third star immediately.

General MONAHAN. First of all, the 720 aircraft that one would procure on a 180 per year multiyear program does indeed have higher savings than a program in which you would buy 180 per year on a multiyear basis plus 36 per year on an annual year basis.

There are a couple of reasons for it. The 36 aircraft per year do not receive the multiyear benefit.

Second, there is a rate benefit associated with growing up from 180 to 216 per year which masks the benefits due to multiyear.

The higher you go up in procurement, the percentage savings you are going to get due to multiyear will be less because of the savings that one gives to production rate alone.

Senator RUDMAN. Go back to the point about the 36 not being included in the multiyear.

General MONAHAN. The way the program is structured 180 per year would be in the multiyear program, an additional 36 per year would be in an annual buy.

Senator RUDMAN. Why don't we put 216 in the——

General MONAHAN. We are proposing 180 per year just so that there will be sufficient flexibility on an annual basis to adjust the program.

Dr. COOPER. Senator, let me take a shot at that. I don't know if I can take credit for this idea, but it is something I have thought about long and hard.

I don't think there is any guarantee that for 4 years running that we are going to get 216 F-16's a year. That is in our program right now, but things change.

What we are trying to do here is identify a core part of this program that we are confident we will continue to support at that level, and that we will have reasonable confidence that the Congress will support.

We have zeroed in on 180 even though our projection shows 216. We are saying why not put that portion on a multiyear contract and glean whatever savings we can from the 180 and leave the 36 as an option. That is our flexibility.

We are not certain what our budgets are going to be four years in advance. We have had problems, quite frankly, getting Congress to sign up long term for large buys in the out years. So, we are looking at a multiyear program with options to add to that if the budget should remain favorable.

CONGRESSIONAL 10 PERCENT SAVINGS TARGET

Senator RUDMAN. Let me go a step beyond that. I believe I am correct that Congress has set a savings target of 10 percent for multiyear contracts, a savings of 10 percent which requires up front funding.

All your multiyear submissions or requests meet that criteria save the F-16. It does not meet the 10 percent.

Why shouldn't we turn this multiyear down since it does not meet our 10 percent goal?

Dr. COOPER. Senator, I am not sure what levels the Senate Appropriation Committee might have set. The law does not set an apriori amount savings. It simply says there has be savings.

Even though it is not 10 percent, we don't think it is an insignificant amount of money. If we are confident we will procure 180 a year, we think it is worthwhile to take advantage of those savings.

Senator RUDMAN. I guess you are right, it is not in the law, but it has been an informal goal.

Dr. COOPER. We still think the savings are significant even though it is not at the 10 percent level.

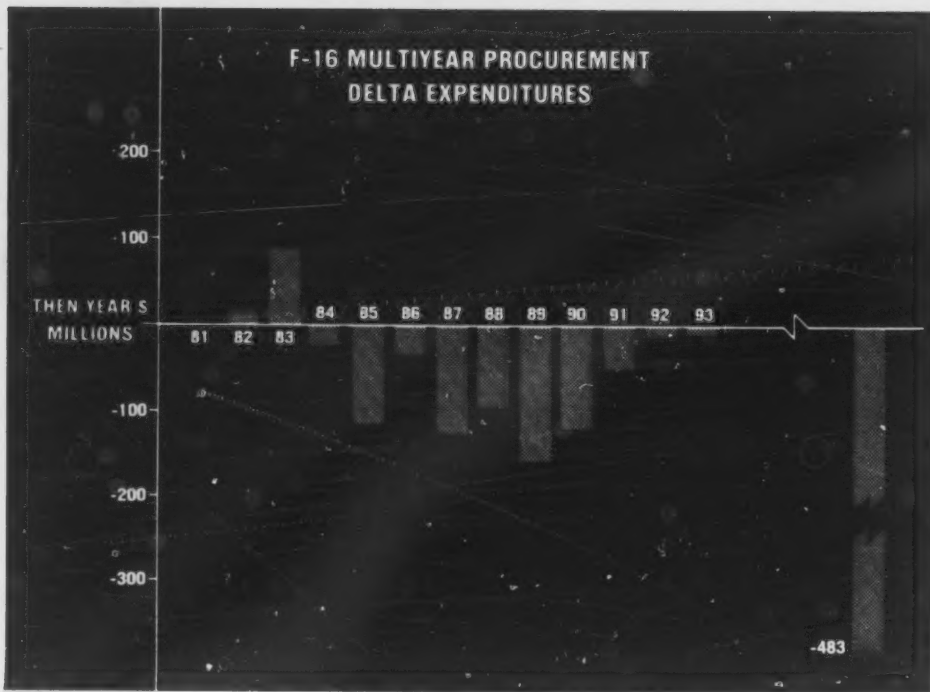


CHART 22

F-16 MULTIYEAR SAVINGS

General MONAHAN. I would like to put up a backup chart that shows the savings in multiyear on the F-16. This will lay out what we have saved over the years so far and what we anticipate saving in the future for an F-16 multiyear.

These expenditures use the ground rules associated with the ratio between expenditures and TOA for any one particular year.



CHART 23

EXPENDITURES OVER ANNUAL PURCHASES

Back in fiscal 1983 the expenditures were this much over the annual buy. Let me explain the chart. This represents what it would be in annual procurement if we bought the aircraft, the same number, on an annual basis.

This shows how much extra in one particular year comes out of the taxpayer's pocket and this shows how much less in any one year.

In 1983 the rules said we should have expended that kind of money because of the F-16 multiyear over and above what an annual procurement would have been. Indeed, our experience now, and we are checking the record, shows we spent very, very little over and above what we would have spent on an annual basis.

So, our savings are actually going to be greater. If I take the two multiyear programs in the case of the F-16, there are only 2 years here where expenditures actually went up a very, very little bit and then a substantial reduction as you can see throughout the rest of the program.

This is from the multiyear program that we are in at the present time. It includes next year plus the program I described, the 180 per year plus 36 per year add-on.



F-15



**AIR-TO-AIR COMBAT FIGHTER
 DEPLOYED WORLDWIDE FOR AIR SUPERIORITY AND DEFENSE MISSIONS
 706 AIRCRAFT DELIVERED TO ACTIVE FORCES
 FY 85 ACTIVATES ONE CONUS AIR DEFENSE UNIT AND BEGINS AVIONICS
 UPDATE PRODUCTION**

F-15

Let us turn to the F-15, our primary air superiority fighter. We now have 706 aircraft delivered to our active forces. We are now activating air defense units with the F-15. Next year we plan to procure 48 aircraft.

Again, the number and figures shown here will be affected because of the decision on the alternate fighter engine competition and also because of the dual-role fighter. There will be revisions made to both of these.

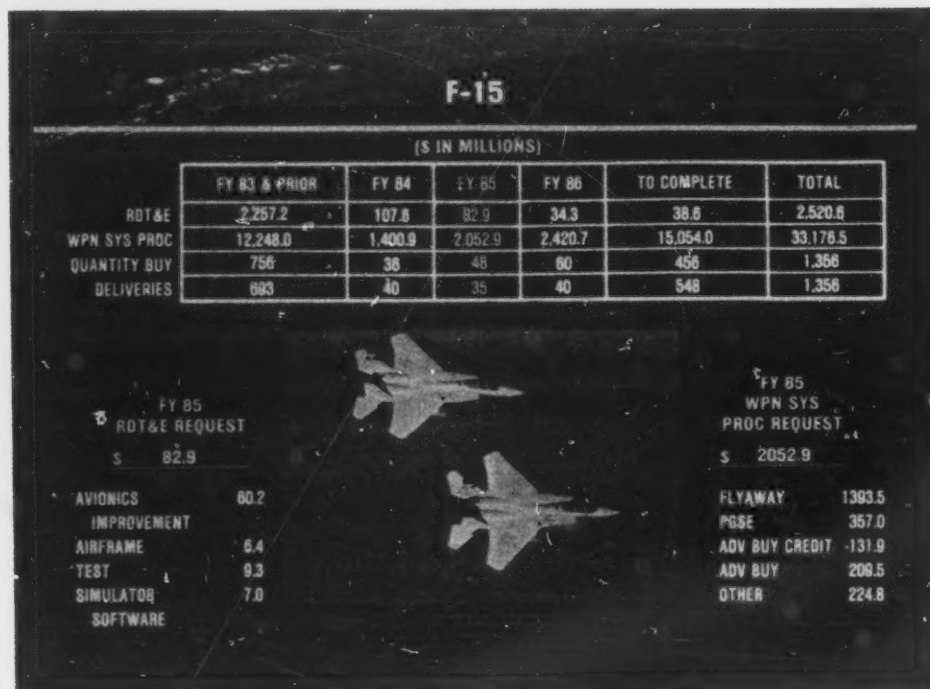


CHART 25

MULTISTAGE IMPROVEMENT PROGRAM

Our plan for next year is 48 aircraft, continuing our multistage improvement program on avionics on the airplane, particularly radar development work, in fiscal 1985.

Those are the only comments I will have on the F-15 now. I will talk in more depth when I get into the dual fighter presentation which is classified.

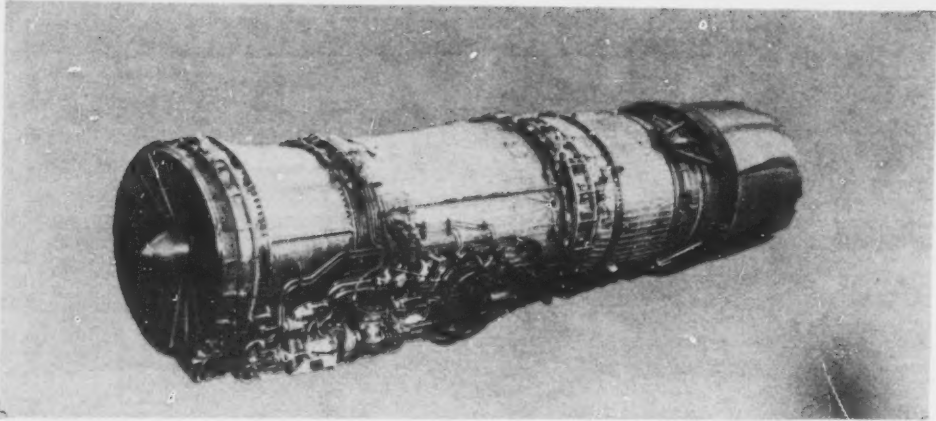


CHART 26

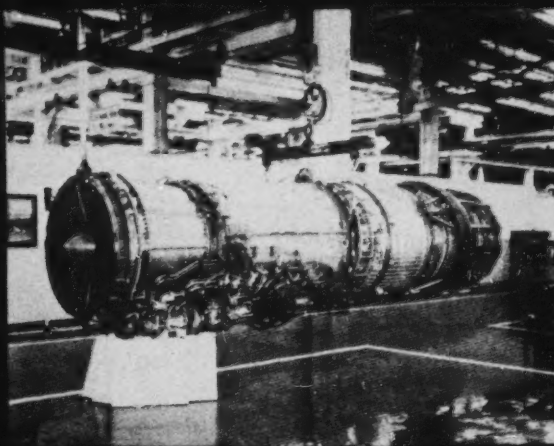
F-110 GE ENGINE

This is a picture of the F-110 General Electric engine, one of the competitors in the competition from which we just made our initial selection.

The alternate fighter engine program was developed from the General Electric F-110 alternate fighter engine. It came out of the engine model derivative program about 2 years ago.

At the same time, we were developing an improved version of the Pratt & Whitney F-100 under the engine model derivative program. We have just about completed the development effort associated with this engine.

ALTERNATE FIGHTER ENGINE



FULL SCALE DEVELOPMENT OF THE GENERAL ELECTRIC F-110
OFFERS TWICE THE DURABILITY OF TODAY'S FIGHTER ENGINE
COMPETITIVE ENGINE FOR F-15 AND F-16 AIRCRAFT
FY 85 CONTINUES DEVELOPMENT AND INTEGRATION INTO F-15/F-16

CHART 27

F-15 AND F-16 INTEGRATION

Next year we will do further F-15 and F-16 integration and continue flight testing. We have already begun in the F-16. We will make a decision as to whether or not to do further F-15 testing as we make further decisions regarding the mix of engines that we will procure between Pratt & Whitney and General Electric for our fighter forces.

We plan to do this flight testing, if necessary, and will make that decision later on in fiscal year 1985. We feel that we really got some benefits from this alternate fighter engine program; tremendous reductions in the cost per engine flight hour.

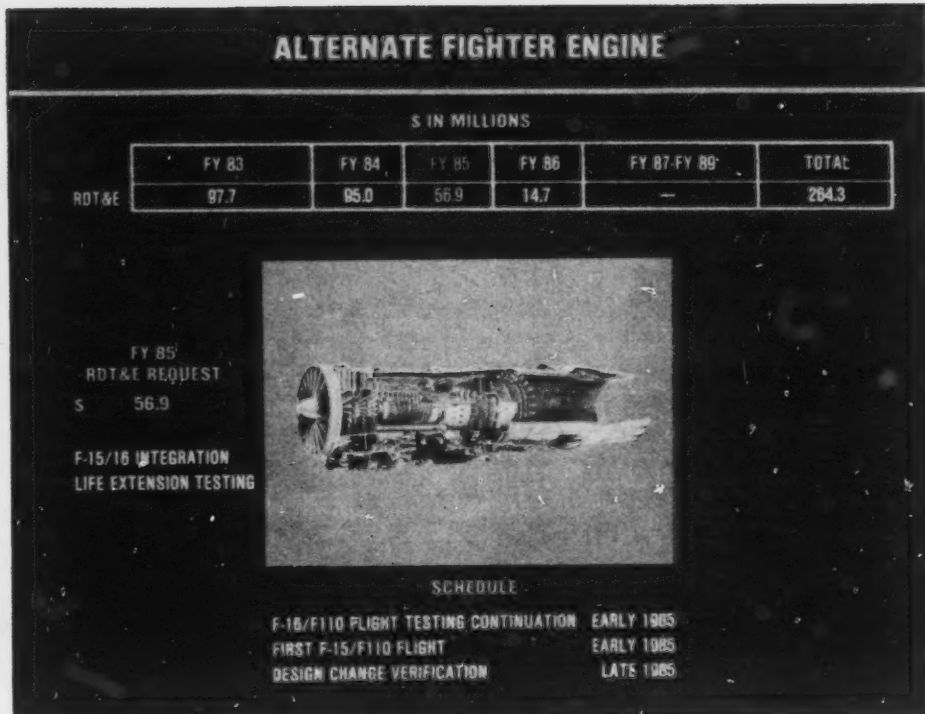


CHART 28

COSTS PER ENGINE FLIGHT HOUR

Had we continued with the F-100 (3) engine, we would anticipate costs per engine flight hour of \$585 per flight hour. With these engines we are down in the vicinity of \$250 to \$300.

RESULTS

NEW ENGINES PROVIDE:*

40-60% REDUCTION IN COST/ENGINE FLIGHT HOUR
 45-60% REDUCTION IN MAINTENANCE MANHOUR/ENGINE FLIGHT HOUR
 40-60% REDUCTION IN ENGINE REMOVALS/1000 FLIGHT HOURS
 NO TRIM REQUIREMENT
 WARRANTED THRUST AND SPECIFIC FUEL CONSUMPTION CHARACTERISTICS
 (3000 CYCLES OR 8 YEARS)
 \$2-3 BILLION SAVINGS IN COST OF OWNERSHIP (OVER 20 YEAR LIFE CYCLE)
 20-35% INCREASE IN SORTIE GENERATION POTENTIAL

*COMPARED TO FY 85 F100(3)

CHART 29

REDUCTION OF MAINTENANCE MANHOURS AND ENGINE REMOVAL

Maintenance manhours and engine removals are reduced. We no longer have to trim the engine before we put them in the aircraft thus saving a tremendous amount of maintenance time as well as fuel.

Overall savings here in the vicinity of \$2 to \$3 billion over the 20-year life cycle of the engine.

ALTERNATE FIGHTER ENGINES

Senator RUDMAN. Let me ask you one question on the engines. I know that there is a lot of testing that was going on with the F-110.

Are you going 70-30 on the F-110 versus the Pratt & Whitney engine.

Dr. COOPER. Senator, really the decision was to start out by putting the improved F-100 in the F-15 and the F-110 in the F-16. This year that split is 75 percent to 25 percent. If that were to continue in the future, it would be more like 66 percent for the F110 and 34 percent for the F-100.

Senator RUDMAN. I understand the Secretary of the Air Force is going to review this at the end of the 12-month period. I was curious about what the test results have been on the F-110. I have seen the other test results on the F100.

Dr. COOPER. Let me comment on that.

We do something we call accelerated mission testing. We have two phases that we test.

One is the development phase and the other is a test on the production version of the engine itself.

We have completed the development qualifications testing on the F110. That is 5,000 tactical cycles. We did that in the 1981-82 time frame.

We have flown that engine in the F-14, F-16 and F-16XL.

We have also completed about half of the production validation testing on the F110. We are now in the process of starting the production validation testing on the F100.

We just recently completed its development qualification test. The F110 is slightly ahead of the improved version of the F100.

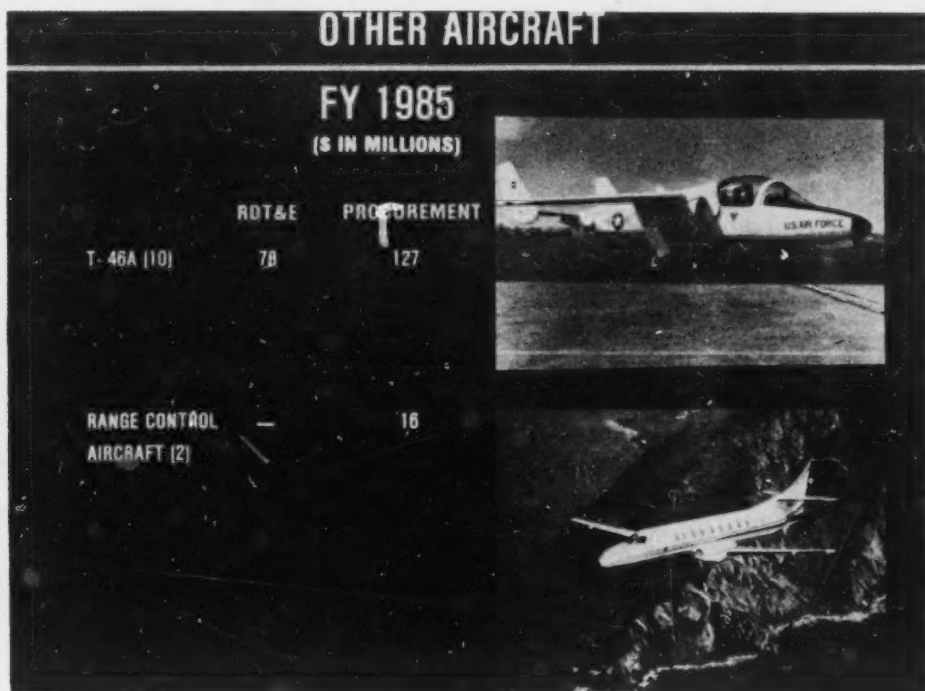


CHART 30

T-46 TRAINER PROGRAM

General MONAHAN. I will talk for a moment about our T-46 trainer program which we call the next generation trainer.



CHART 31

F-46A TRAINER

This is a good look at the side-by-side seating and small turbo fan engines. It is a small simple airplane, but one that will give us great return in fuel economy as well as in safety and better performance for our student pilots.

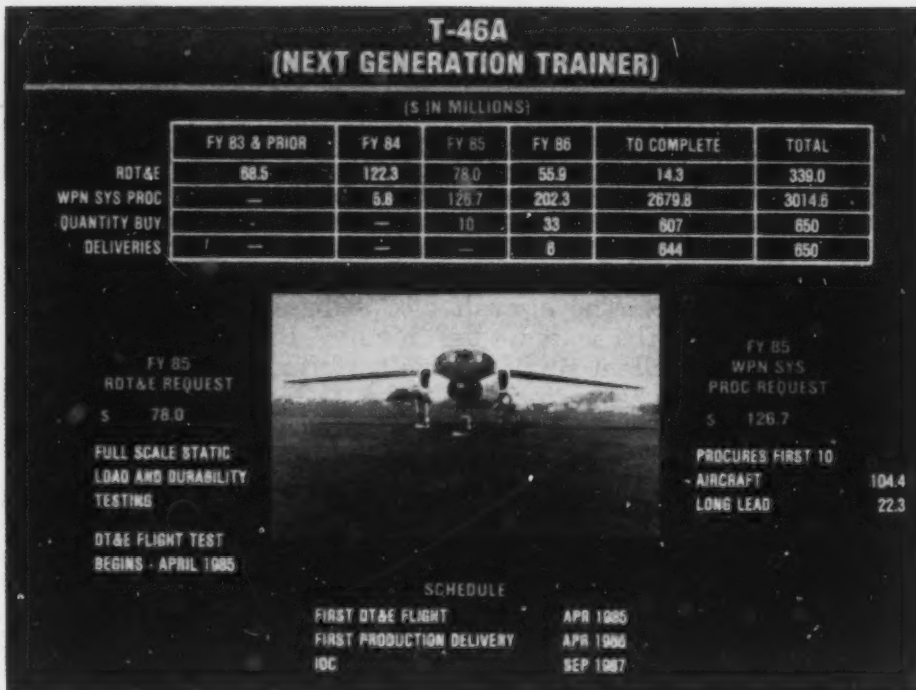


CHART 32

F-46A PERFORMANCE

Senator RUDMAN. What is the performance of that aircraft?

General MONAHAN. Range, speed, and altitude, perhaps General Russ can look some of those up. Altitude-wise it has very good advantage over today's T-37. It is pressurized. The T-37 is not pressurized.

We are able to operate at altitude of 25,000 to 30,000 feet, providing much better training.

Senator RUDMAN. I am sure that is available. You can submit it for the record.

[The information follows:]

T-46 TRAINER

	<i>Estimate</i>
Cruise Altitude.....	35,000
Cruise Speed (25,000 ft) (KTAS).....	300
Landing Approach Speed (Knots).....	90-110
Engine Thrust (uninstalled, S.L. ¹ (lbs.).....	1,330
Critical Field Length (5000 ft. Pa. ² (100°F) (ft.).....	5,000
Crosswind Capability (knots).....	25
Rate of Climb at 25,000 ft (fpm).....	2,000
Sustained Load Factor at 25,000 ft ("G").....	2.5
Single Engine (5000 ft PA, 100°F)	
Takeoff Climb Gradient (percent).....	3.5
Go Around Climb Gradient (percent).....	2.0

¹ SL=Sea Level.

² PA=Pressure Altitude

T-46 FLYAWAY COST

Senator RUDMAN. What is the flyaway cost of that under your present contract?

General MONAHAN. Over the years we are looking at a little over \$4 million, \$4.17 million flyaway cost if we procure all 650 aircraft according to the schedule we now have laid out for ourselves.

Dr. COOPER. I have a cheat sheet. I can give you some of that. The cruise altitude is 35,000 feet. Its cruise speed is 300 knots. I don't have its total range.

General MONAHAN. The aircraft also utilizes the ACES II ejection seat. Those are the seats we use in our F-15 and F-16.

The T-46 has excellent single engine performance by comparison with the T-37. We have to restrict the T-37 today in terms of flying in certain weather conditions, at high altitude airfields or hot days.

Senator RUDMAN. What is the engine? Is it a Garrett Air Research turbine?

General MONAHAN. Yes. The avionics are simple. Ninety-five percent of them are off the shelf. Specific fuel consumption, it uses 65 percent less fuel than our T-37s do.

We would begin procurement next year of the first ten aircraft which are on a priced production option with Fairchild. The first production deliveries will occur in 1986. We are ramping up after that.

We plan on 33 aircraft in fiscal 1986. We are asking for advanced procurement funds for those, eventually getting up to 650 aircraft.

Are there any questions?

General Russ. I might add a couple points on this aircraft.

Unlike fighter aircraft or bomber aircraft, the objectives for the aircraft are set down based on the training scenario in the Air Training Command.

As an example, the objective for fuel and time which end up going into range if you want to make range, is that we need sufficient fuel for an hour and a half formation flight at 15,000 feet, then an approach and then sufficient fuel for a 300-mile alternate diversion in case the airfield is closed.

So, it is those sorts of performance parameters which we have designed into the airplane.

Senator RUDMAN. I was curious about how you were doing with this particular aircraft, being dual engine, and so forth.

General MONAHAN. Thank you very much.

Dr. COOPER. We have gone about as far as we can go with our formal presentation.

SUBCOMMITTEE RECESS

Senator RUDMAN. We will stand in recess for a 5-minute period while we clear the room of all unauthorized personnel.

[Whereupon, at 10:55 a.m., Tuesday, April 3, the subcommittee recessed, and proceeded in executive session.]

EXECUTIVE SESSION

TUESDAY, APRIL 3, 1984

The subcommittee proceeded in executive session at 11 a.m., in room SD-124, Dirksen Senate Office Building, Hon. Warren B. Rudman presiding.

Present: Senator Rudman.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENTS OF:

HON. THOMAS E. COOPER, ASSISTANT SECRETARY OF THE AIR FORCE FOR RESEARCH, DEVELOPMENT AND LOGISTICS

LT. GEN. ROBERT D. RUSS, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION UNITED STATES AIR FORCE

MAJ. GEN. WILLIAM A. GORTON, DIRECTOR OF OPERATIONAL REQUIREMENTS, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION

MAJ. GEN. GEORGE L. MONAHAN, DIRECTOR OF DEVELOPMENT AND PRODUCTION, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND ACQUISITION

A TACTICAL FIGHTER ROAD MAP

Senator RUDMAN. Mr. Secretary, will you check all the folks who are sitting behind you.

Dr. COOPER. We are clear.

Senator RUDMAN. General Russ, you may proceed.

Dr. COOPER. General Russ, before you start, maybe I can make a brief remark, Mr. Chairman.

Senator RUDMAN. All right.

Dr. COOPER. What we have done here is what we call a tactical fighter road map. When you first look at it, you might be somewhat overwhelmed by the amount of dollars that you will see. In fact, what we have done is repackage what was pretty much already there in terms of the budget and amalgamated it in one slide which you will see at the end of the presentation. This lays out what we recommend to be our fighter procurement plan for the next 10 years.

It addresses force structure, the types of aircraft we are going to buy, the mix, and the number. I think it is a very intelligent way to do it.

It really is a 10-year plan that will show you in a very concise form what we propose to do over the next 10 years with our tactical fighter force.

(429)

General Russ has been in the process of putting this together for the last 6 months. I think it is a very interesting piece of work.

General Russ. Thank you, Dr. Cooper.

AIR FORCE TACTICAL FIGHTER ROADMAP



1984 - 1993

AIR FORCE TACTICAL FIGHTER ROADMAP OVERVIEW

CURRENT FORCE

STATUS - SIZE, AGE AND PHASE OUT PLANS

MODERNIZATION PROGRAMS

FUTURE FORCE

PROCUREMENT STRATEGY

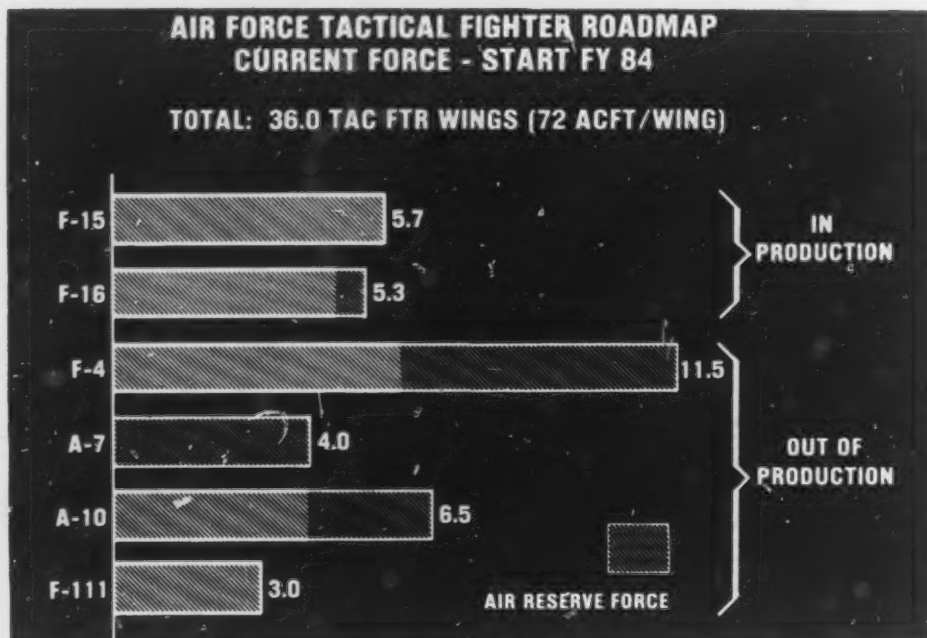
1993 FORCE STRUCTURE AND CAPABILITY

THE CURRENT FORCE

We divided the road map into two sections. First I would like to discuss the current force, the size of it, the age and what our phase-out plans are and also some of our modernization plans.

By that I mean what we are going to do to modify these aircraft. Then we will shift to the future force and lay out the procurement strategy that Dr. Cooper mentioned. We will be looking at the numbers of fighters we need to procure, the mix of fighters, how many should be air-to-air and how many air-to-ground, and then what special capability we need in those fighters.

We will culminate with a look at what our force will be in 1993 and we will show you the capability of that force.



SLIDE 2

TACTICAL FIGHTER WINGS

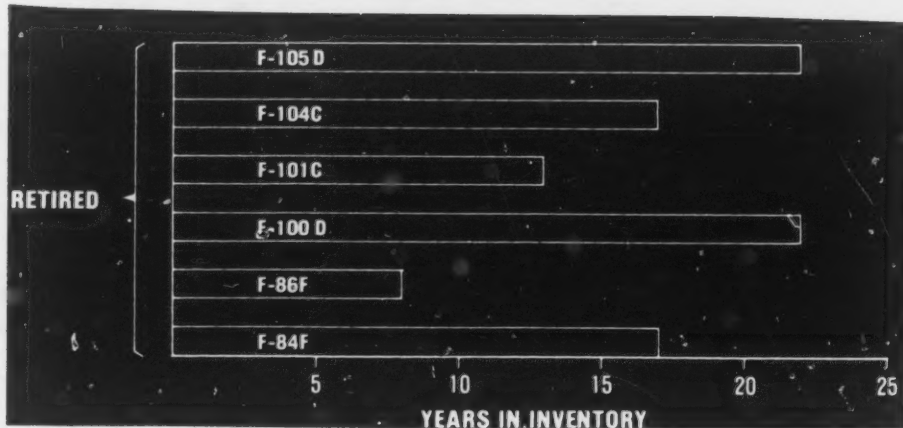
General Russ. Looking at the current force, we have 36 tactical fighter wings, 72 aircraft per wing. Our force is divided in two sections, production aircraft composed of the F-15 and F-16, and out-of-production aircraft.

A large portion of this force, namely the F-4, will need to be retired by the latter part of the 1980's and early 1990's.

We retire aircraft for two reasons: One, when they become technically obsolete, and two, when they are no longer maintainable.

FIGHTER INVENTORY LIFE

[DELETED]



SLIDE 3

USEFUL LIFE OF AIRCRAFT

Now, this chart shows the useful life of a variety of aircraft that have been in the Air Force inventory. What it says is that the F-84F's useful life was about 17 years and then it was retired from the active inventory.

This occurred because it was technically obsolete. Accordingly, the F-86 was retired in less than 10 years because it was technically obsolete.

The F-100D and F-105D simply wore out. The F-101C and F-104C were retired because they were technically obsolete. [Deleted.]

Senator RUDMAN. When you say no longer maintainable, can you quantify that?

What is no longer maintainable in that particular case? Is it stress? Is it parts? What is it?

General RUSS. It is generally the airframe itself. We find that those airplanes will have been in the inventory, as you can see, well past 20 years at that time. We are discovering cracks in the main spars. We are finding symptoms of corrosion and age that you expect to find after a period of time.

Sooner or later it becomes non-productive to modify airplanes of that nature. It is kind of like modifying your 1968 car. You can put a new engine in it, you can put a new radio in it, and new air conditioner in it, but it is still a 1968 car and pretty soon the body rusts out.

That is what is happening here. You will recall the majority of these fighters were procured in the 1967, 1968, 1969 timeframe.

I will show you a chart on that in a minute. That was during the Southeast Asia war.

The bottom line of this chart is that the useful life of any fighter varies by what its role is and what model it is. On average, we plan in the Air Force that useful life of a fighter is [deleted] years.

[Slide 4, Current Age of Fighter Force, Has Been Deleted]

CURRENT AGE OF FIGHTER FORCE

Now, this chart shows the current age of our fighter force at the start of fiscal year 1984. As you can see from the chart, it is divided into two parts.

On the left side of the chart we have the F-16, F-15, A-10 and A-7 which are the newer force and on the right side of the chart we have the older force which is dominated by the F-4.

The F-4 will start to reach [deleted.]

Dr. COOPER. I think that chart addresses the question you asked earlier, Senator, about why the build up and then coming back down. You can see right here it is reflected as well. You can see the numbers of the various aircraft we were buying at one time and the total amount.

[Slide 5, F-4 Force Phaseout, has been deleted]

F-4 FORCE PHASE OUT

General RUSS. Currently we have slightly more than 1,200 F-4's in the force. The average age is [deleted] years. By the end of the eighties that age will increase to approximately [deleted] years. Then you can see the dramatic phase-out program for the F-4's with the only ones remaining in the fleet being the later model, F-4E's that we have procured since the Vietnam war.

Senator RUDMAN. About how many of the F-4's are there?

General RUSS. At this point in time we will have (deleted) of them, (deleted.)

Senator RUDMAN. Of course, there are a number of those around the world that foreign governments have.

General RUSS. Absolutely. The important point is that the ones that have been sold around the world are these.

Senator RUDMAN. I am going to have a question which I am sure you have already anticipated and I am sure you are ready. So we will continue and I will ask that at an appropriate moment.

Dr. COOPER. We had a long discussion with Dr. DeLauer in anticipation of your question, Senator.

Senator RUDMAN. I am glad.

General RUSS. It is useful to remember on the slide what I am talking about is average age. That means some of these airplanes will be 25 and 26 years old before they go out of the inventory. Let us look at the total force.

[Slide 6, Projected Average Age, has been deleted]

PROJECTED AVERAGE AGE

That is the F-4 force. The total force in 1984 of the fighter that we are discussing has an average age of about [deleted]. That will climb to just under [deleted] years before it turns around and comes back and stabilizes at a little bit below [deleted].

For comparative purposes I have shown the Soviet average age. Now, throughout the lifetime of a fighter we modify it. We modify it for two reasons.

FIGHTER MODIFICATION AND IMPROVEMENT PROGRAMS

- AIRCRAFT REQUIRE IMPROVEMENTS THROUGHOUT THEIR USEFUL LIFE
 - TO EXTEND UTILITY IN THE PRIMARY ROLE
 - TO EXPLOIT POTENTIAL IN A SECONDARY ROLE
 - FOR RELIABILITY AND MAINTAINABILITY
- MODIFICATIONS ARE NOT MADE WITHIN FOUR YEARS OF AIRCRAFT PHASE OUT

SLIDE 7

REASONS FOR MODIFICATIONS

One, to extend its utility in either a primary or secondary role. And two, to improve the reliability and maintainability of that aircraft.

Now, we do have one policy that we do not modify any airplane within 4 years of its retirement. It is very obvious we don't want to spend a lot of money and then take it to the boneyard.

There are exceptions to that: Safety modifications. We would modify an airplane to improve safety. By and large, reliability and maintainability modifications would not be made.

CURRENT FORCE MODIFICATION AND PHASE OUT PLANS			
AIRCRAFT	PHASE OUT	MODIFICATIONS	PERCENT OF FORCE TO BE MODIFIED
A-7	1989-1998	• AIM-9L CAPABILITY • FLIR	[DELETED] [DELETED] [DELETED]
A-10	1990-1999	• AIM-9L CAPABILITY • INERTIAL NAVIGATION SYSTEMS • LANTIRN	[DELETED] [DELETED] [DELETED]
F-4	1984-1998	• AIM-9L CAPABILITY (F-4D&E) • IMPROVED AIR-TO-AIR RADAR (F-4E) • LOW SMOKE ENGINES • HIGH PERFORMANCE CENTERLINE TANK	[DELETED] [DELETED] [DELETED]
F-111	POST 2000	• AIM-9L CAPABILITY • AVIONICS RELIABILITY AND MAINTAINABILITY UPGRADES	[DELETED] [DELETED]

SLIDE 8

MODIFICATIONS OF AIRCRAFT

This chart shows those modifications of the aircraft in our force that are no longer in production, namely the A-7, A-10, F-4 and the F-111.

I might say this does not include all of the little modifications. What I have tried to do is put the big modifications on this chart.

Now, you will see that all of the airplanes receive an AIM-9L capability. That is the latest model air-to-air Sidewinder missile.

We are going to provide these airplanes with a defensive capability.

In the A-7 we are modifying [deleted] percent, of the force with forward looking infrared [FLIR] to give them a partial night capability.

In the A-10 we are modifying [deleted] of the force with inertial navigation systems to improve their low level capability. As you know, [deleted] of the A-10 force received that modification when it went through the production line.

LANTIRN is going on [deleted] the force.

In the F-4's we are going to improve the air-to-air radar. I should say we have improved the air-to-air radar. That modification will be done within the next 3 months. That is done to [deleted] of the force.

We are putting low smoke engines on a portion of the F-4 force, predominately the E model, again because it stays around the longest, although there will be a few D models.

We are developing a high performance centerline tank. This tank will allow the aircraft to carry the tank throughout the entire G and airspeed envelope of the airplane.

Finally, in the F-111 we are putting in an avionics reliability and maintainability upgrade. This upgrade does not improve the capability of the airplane. It is designed solely to improve the reliability and maintainability.

Today in our F-111 force we average, depending on the block model, from 2½ to 5 hours mean time between failures in the avionic system.

With this modification we hope to get to 19½ to 20 hours mean time between failure.

Senator RUDMAN. The FB-111 is a separate aircraft, of course, and when I visited some of those things in England 1½ years ago they were pretty far along with a very interesting infrared system, PAVE TACK.

Is that now being put on those FB-111s?

General RUSS. Not on the FB.

Senator RUDMAN. The F-111, I should say.

General RUSS. The F-111s you visited in the United Kingdom are receiving the PAVE TACK pod. It gives them a night capability, night FLIR capability and night laser capability.

Senator RUDMAN. I was very impressed by the equipment that they demonstrated.

General RUSS. It is a very large pod. In essence, it requires a two-man crew to be able to integrate it in the airplane.

AIR FORCE TACTICAL FIGHTER ROADMAP FUTURE FORCE

A PROCUREMENT STRATEGY TO MEET THE THREAT MUST PROVIDE:

- THE REQUIRED NUMBERS OF FIGHTERS TO FLESH OUT, MODERNIZE AND SUSTAIN A 40 TFW FORCE AND OUR AIR DEFENSE FORCE
- THE NEEDED MIX OF FIGHTERS TO ACCOMPLISH SPECIALIZED AND MULTI-ROLE MISSIONS
- THE QUALITY IMPROVEMENTS FOR FIGHTERS TO DO THE DEMANDING MISSIONS

FIGHTER PROCUREMENT STRATEGY

Let me move now to the second part of my road map. The second part lays out a procurement strategy that is based on three primary elements.

First, we need to procure the right numbers of fighters, to flesh out, to sustain and to modernize the 40 tactical fighter wing force and our aid defense forces.

We also need to procure the right mix of fighters. By that I mean the right number of air-to-air and air-to-ground fighters and the right number of multipurpose fighters, if you will.

Finally, we need the proper quality improvement to some of these fighters to do the more demanding missions. I will discuss each one of these in a little more detail to show you why we need these and their composition.

[Slide 10, Tactical Fighter Wings, has been deleted]

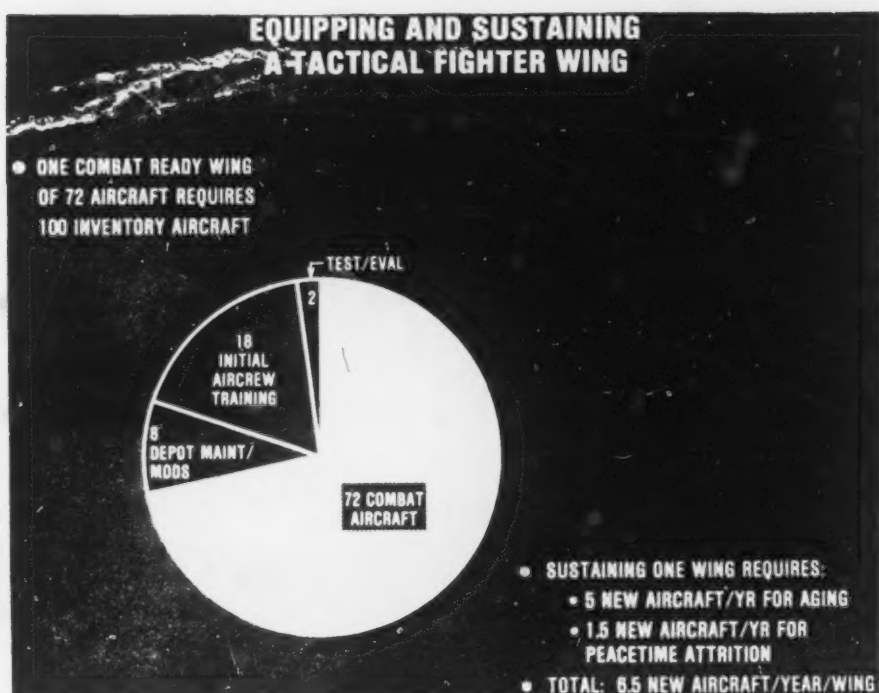
TACTICAL FIGHTER WINGS

First, talking about numbers, we talk about 40 tactical fighter wings. You might ask why 40. Well, our answer to that is simply that 40 is really not enough, but we believe that in the budget bind we are in it is probably a prudent figure.

Let me tell you that the JCS say that what is required is [deleted] to successfully carry out the military strategy with prudent risk.

Our planning goal and our approved level and the level we discussed with you last year was [deleted] tactical fighter wings.

Today I want to talk about 40 tactical fighter wings. Recall now we only have 36 tactical fighter wings today.



SLIDE 11

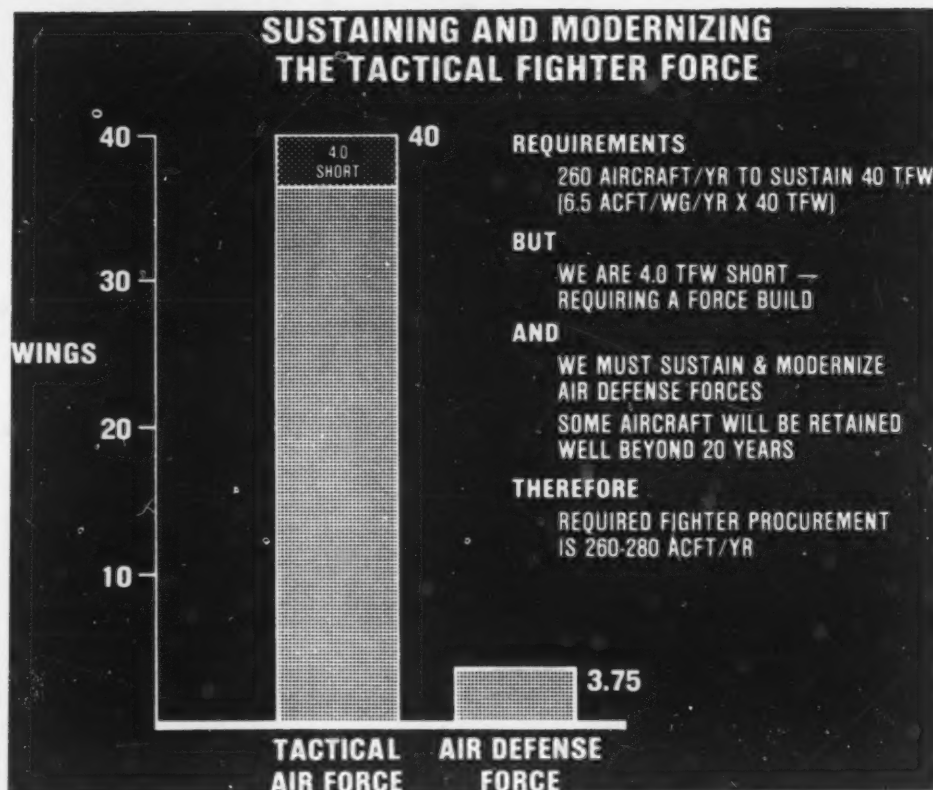
NUMBERS NEEDED FOR A WING

Now, speaking of numbers, it is important to start with how many airplanes does it take for a wing. For every combat ready wing of 72 airplanes we require an inventory of 100 airplanes. That means for every wing you buy 100 airplanes. That will assure 72 airplanes are available for combat at any time.

You take 28 airplanes to support that. You can see how those 28 are broken down. Two in test and evaluation, 18 in the school-house, 8 in depot mod and various pipelines.

Now, if you assume as we do that the age of a fighter is 20 years, then you must replace one-twentieth of the force every year.

If it takes 100 airplanes for a wing, one-twentieth of 100 means you have to replace five each year.



SLIDE 12

AIRCRAFT REQUIREMENTS

You also need to replace one and a half aircraft for peacetime attrition. If you add those two together, you see you need six and a half new airplanes per year per wing.

If you multiply six and a half times 40, you will see that you need 260 airplanes per year to sustain a 40 tactical fighter wing force. That is a 40 tactical fighter wing force with an average age of (deleted) years.

But we are four wings short. so, that means we need to buy a few more than that to get up to the 40 tactical fighter wings.

The question then becomes how many more do you want to buy and at what rate. What we have done is reprogram those extra airplanes out through the 1980's and we will not reach the 40 tactical fighter wing goal until 1989.

Now, in addition, we must sustain and modernize our air defense forces of which we have 3.75 wings equivalent.

On the other hand some of our aircraft will [deleted] and probably longer than that.

When you add the pluses and minuses, you come up with a figure that says we require 260 to 280 aircraft per year to flesh out, modernize and sustain a 40 tactical fighter wing force and our air defense forces.

THE FIGHTER MIX REQUIREMENT

THE FIGHTER FORCE MUST CONTAIN A MIX OF SPECIALIZED AND MULTI-ROLE AIRCRAFT
THE MIX MUST PROVIDE THE FLEXIBILITY TO MEET CINC AIR-TO-AIR AND AIR-TO-GROUND
REQUIREMENTS

CINC REQUIREMENTS VARY BY THEATER, BY TIME, BY ENEMY SITUATION AND IN
CONSIDERATION OF ALLIED CAPABILITIES

AIR-TO-AIR AND AIR-TO-GROUND MIX IN CURRENT WAR PLANS

[DELETED]

SLIDE 13

FIGHTER FORCE MIX

Now, numbers are important. As I said, initially we must also consider the mix. When we look at the mix, the fighter force must have sufficient air-to-air and air-to-ground aircraft to meet the CINC's requirements.

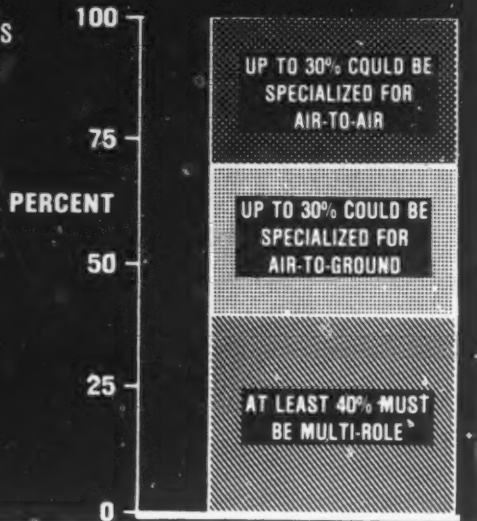
Now, the CINC's requirements vary by the theater, they vary by time of war, they vary by what the enemy has and they vary by what support you have from your allies.

As an example, this is the breakdown of the current war plan in Europe. [Deleted.]

THE FIGHTER MIX REQUIREMENT

A COMPOSITE PERSPECTIVE OF
EXPERIENCE AND WAR PLANS DICTATES
THAT A SUBSTANTIAL PART OF THE
FORCE BE MULTI-ROLE AIRCRAFT

FLEXIBILITY INCREASES WITH MORE
MULTI-ROLE AIRCRAFT - BUT
NUMBERS OF MULTI-ROLE AIRCRAFT
ARE CONSTRAINED BY COST
IT IS MORE DIFFICULT AND
COSTLY TO TRAIN MULTI-ROLE
AIRCRAFT
SPECIAL CAPABILITIES
ARE NEEDED FOR THE MORE
DEMANDING MISSIONS



SLIDE 14

MULTIROLE FORCE

As the war progressed, he would shift the weight of effort to [deleted].

In Korea, on the other hand, the commander allocates [deleted]. You can see he shifts that weight as the war progresses.

Now, the point of the slide is that a certain portion of your force has to be multirole. A certain portion has to be able to swing from the air-to-ground to air-to-air or vice versa.

The question then becomes what portion needs to be swing. What we did is take a composite perspective of our experience and our war plan and we sat down and took our senior officers and decided what we thought was the proper balance.

We came up with the fact that 30 percent of our force could be specialized for air-to-air, 30 percent could be specialized for air-to-ground.

But, very important, 40 percent had to be multirole, at least 40 percent had to be multirole. Then we asked ourselves, if 40 percent multirole is good, why not all multirole?

The simple answer was that multirole aircraft generally are constrained by cost. They generally cost more.

The second point is that it is more difficult and costly to train multirole aircrews. It takes longer and they do not become as proficient generally as the aircrew that has the same amount of time that is dedicated to one specific mission.

SPECIALIZED CAPABILITIES

Finally, we do need some specialized aircraft because there are some specialized capabilities that we need.

That leads me to the third section and that is in regard to specialized capability.



SLIDE 15

CAPABILITY REQUIREMENT SPECTRUM

This chart shows the capability requirement spectrum. What it says is that in the air-to-air arena the easiest mission to fly is air defense in day visual conditions.

The most difficult mission to fly is air-to-air over enemy territory in all weather. If you look at what we currently have in our all-weather force, you will see at the end of 1984 we have [deleted] tactical fighter wings of all-weather air-to-air fighters composed of the F-4's and F-15's.

[Slide 16, F-16 Capabilities, has been deleted]

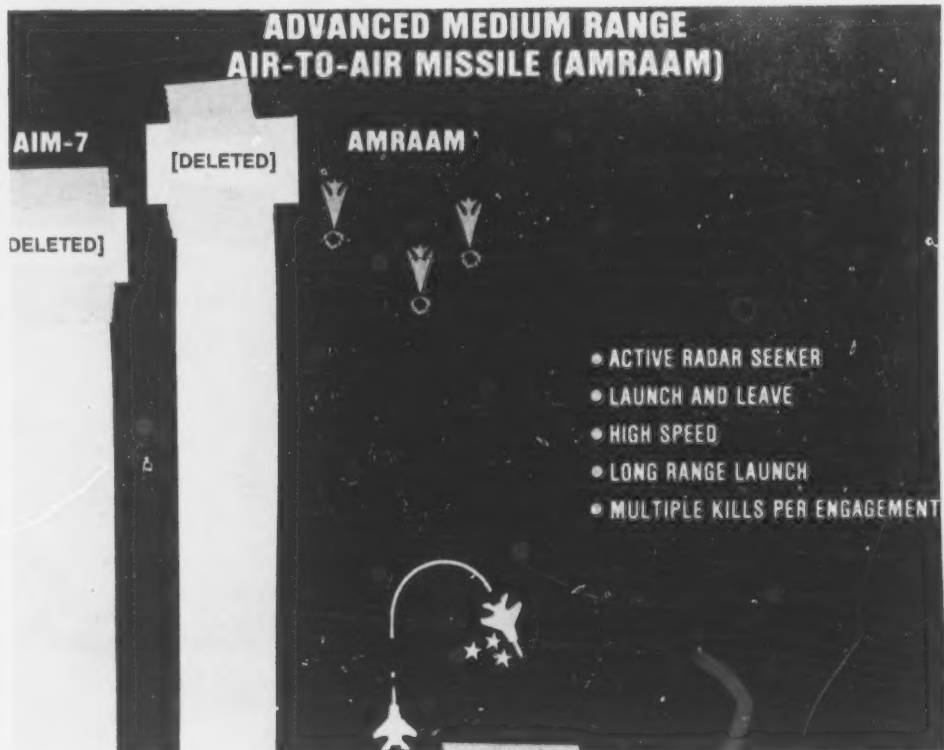
By 1993 our plan is to increase that by [deleted] wings to [deleted] wings. We do that primarily by the addition of the F-16.

As you know, the F-16 today is a day visual fighter. It is not an all-weather night fighter. But we make the F-16 an all-weather fighter because we give it the AMRAAM capability.

AMRAAM

Now, the AMRAAM is our advanced medium-range air-to-air missile. This shows the AMRAAM versus the AIM-7. If an F-15 pilot fires an AIM-7 today against an enemy force, he must continue on that path toward that enemy because he has to continue to guide that missile and to assure it gets to the target.

That requires the F-15 to get very close to the enemy fighter, also within his range, and [deleted].



SLIDE 17

ACTIVE RADAR SEEKER

The AMRAAM has an active radar seeker which means that the aircraft can fire the missile, the missile then can pick up the target by itself, which allows the airplane to launch the missile and leave.

The missile is high speed and long range and the fighter can fire more than one missile at a group of airplanes. So, he can fire at multiple targets on a pass and hopefully get multiple kills.

Dr. COOPER. Before you leave that, just to diverge for a moment, Mr. Chairman, we are in the process of restructuring the AMRAAM program.

I want to let the committee know that. We will work with you. We will have an AFSARC on Thursday or Friday. We probably won't need all the production money that is in the current budget request. I am not, however, prepared to say exactly how much we will take out.

I do want to serve notice that there will be some changes in the AMRAAM program. There are no overwhelming technical problems; we are just behind schedule.

Senator RUDMAN. Let me ask you a question at that particular point. It is more in systems than in aircraft.

What are you doing about changing quickly the weak link in the chain here and that is your late 1950's vintage MK12 IFF?

MK15

General RUSS. We currently have a program which is called the MK15. It is a new IFF system. We have had difficulty getting universal agreement on the wave form and the way we integrate that IFF.

We are now in a position where we have agreement with the French, the United Kingdom, and our Government on how we should do that.

The Germans are still not completely on board.

It is important, as you might recognize, that everybody be on board on the same wave form and the same system.

Senator RUDMAN. I would hope so with that kind of missile operating; otherwise, it won't do you much good. You are not sure what you are firing at.

Dr. COOPER. You have put your finger on one of the toughest problems we have. The MK15 is where we are headed. We don't have complete agreement with everyone yet.

Senator RUDMAN. There is the likelihood that we might well get to the point of where you want to get with this missile and still not have the kind of system in terms of the MK15 installed that we want which, of course, is a limiting factor in the full operational capability of that aircraft and that missile.

General RUSS. Sir, it is, but remember, an IFF says identification, friend or foe. What it does is identify the friend. It does not identify the foe.

While it is important to the maximum utilization of the AMRAAM to have an IFF system, it is not imperative. There are certain rules of engagement that you use.

Senator RUDMAN. I understand that. I am knowledgeable about the ranges involved here.

One of the things you are going toward is more stand-off operation. Ideally you would like a person to have a good IFF in there and know precisely.

Dr. COOPER. We could not agree more. If you get into an all-out shooting war, there will probably be some friendlies shot down.

Senator RUDMAN. It won't be the first time.

General GORTON. In the overall combat system, we are looking at MK15 as an improvement of the MK12. Those are friendly identification.

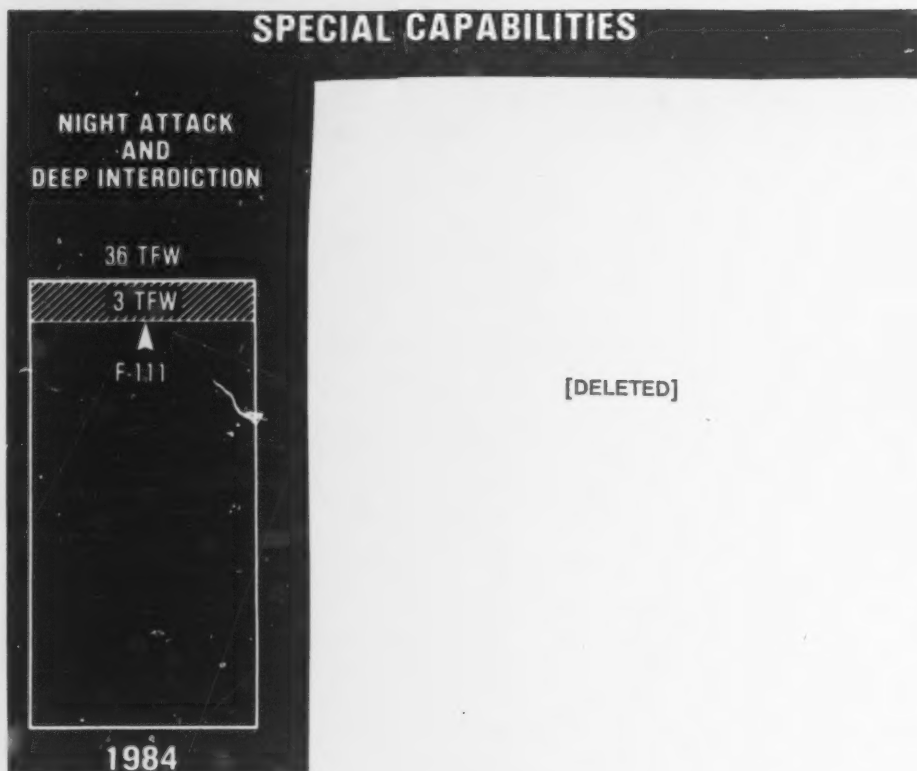
We are spending funds and making improvements today in identifying foe. It is a complete package. When you look at identifying the foe [deleted].

Senator RUDMAN. [Deleted.]

General RUSS. [Deleted.]

Senator RUDMAN. I am aware of that.

Go ahead.



SLIDE 18

AIR-TO-GROUND MISSION

General Russ. The second part of the capability requirements spectrum has to do with the air-to-ground mission. Again, the easiest air-to-ground mission is close air support during day visual conditions.

The most difficult is the deep interdiction mission at night or in all weather. Today the only capability we have to do that night attack and deep interdiction mission is three tactical fighter wings of F-111's.

Two of the wings are in Europe. You saw them when you were over there. We would hope to increase that capability by 1993 by the addition of [deleted] of dual role fighters which will give us a total of [deleted] for deep interdiction.

LOW ALTITUDE NAVIGATION AND TARGETING INFRARED FOR NIGHT (LANTIRN)

• CAPABILITIES

- TERRAIN AVOIDANCE, NAVIGATION AND ATTACK UNDER WEATHER AT NIGHT
- IMPROVED VISUAL TARGET ACQUISITION AND IDENTIFICATION
- IR MAVERICK CUEING
- NIGHT UNGUIDED WEAPONS DELIVERY WITH DAY-VISUAL ACCURACY
- LASER DESIGNATOR FOR PRECISION BOMBING

• AIRCRAFT — PODS

- F-16C — 200
- A-10 — 100
- DUAL ROLE FIGHTER — 420

SLIDE 19

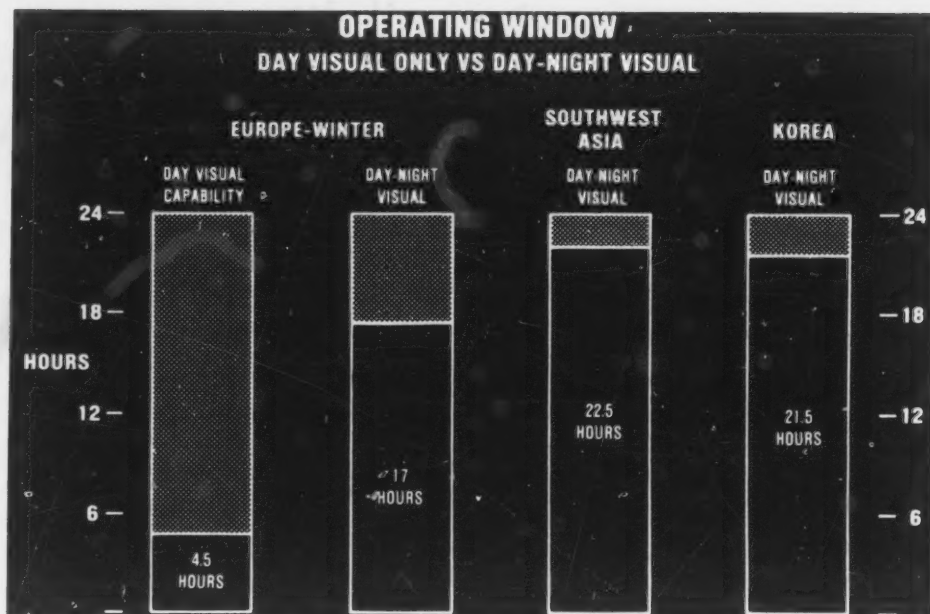
LANTIRN

We would increase from three to [deleted] in our night attack capability, primarily through the addition of LANTIRN. LANTIRN is a system that will give us that night attack capability. LANTIRN, as you know, will allow us to navigate and attack targets at night with day precision.

Also, in LANTIRN is the capability to drop laser-guided bombs. We do not now currently have the capability to lase a bomb from a single-seat airplane.

As General Monahan mentioned before, the vast majority of our fleet is going to be F-16's. This is the only capability we will have to drop laser-guided bombs from the F-16.

Our current plan is to procure 720 pods. I might mention some of them will be pipeline and spares.



SLIDE 20

LANTIRN OPERATIONS IN EUROPE

Now, the LANTIRN pod gives us this sort of operating window. First let me tell you what we have today. Currently today in Europe in the winter months there are only 4.5 hours a day that we can fly with our day visual system. That means 19½ hours a day that the enemy does not have to worry about any airpower being overhead dropping bombs.

I will make an exception: With the exception of those three wings that we have of F-111's. Other than that that is the only capability we have.

If we give that force a night capability, we will open that operating window to 17 hours a day. More importantly, it will double the number of sorties.

In other words, these airplanes can fly twice the number of sorties because they can turn around. If you look at the other parts of the world, adding that night capability also gives you a significant operating window.

EXPLANATION OF 17 HOURS

Senator RUDMAN. Will you explain that 17 hours for me after you get the equipment that you want?

I don't quite follow that. I am missing something. I understand the 4.5 hours. Just putting the F-111's aside, if you go to the equipment, are you talking about the amount of force you will have available over targets?

Is that how you get the 17 hours?

General RUSS. Let us take one airplane. I will take a current F-16 today. He can fly during the winter months of January and Feb-

ruary 4½ hours a day because other than 4½ hours a day it is either night or the weather is too bad.

If I give him a night capability and low visibility capability, which the LANTIRN will do, then that window opens to 17 hours a day. He can operate during that 17-hour window.

Senator RUDMAN. Why not 24?

General RUSS. He can't because the weather is too bad to fly.

Senator RUDMAN. It is below those minimums for that equipment, I understand that. All right.

RANGE CAPABILITY

General RUSS. Now, having the ability to operate at night is very, very important.

Also important to the interdiction mission is range.

Let me take you through this chart because I will use it a couple of times and I think it is very important to understand it.

[Slide 21, CINC Primary Targets, has been deleted.]

On the left side of the chart I have a scale from zero to 100 percent. It represents the targets that the CINC has decided are his primary targets and the ones he would like struck in the first part of the war.

[Slide 22, Air Coverage of CINC Targets, has been deleted]

If you struck all of these targets, we would reach 100 percent. If we base fighters at Hahn Air Force Base, which is 140 miles from the political border, and if we operated out of that base with our F-4 force, we could cover about [deleted] percent of the targets that the CINC wants covered.

With the F-16 we can cover slightly more, up to about [deleted] percent.

Only the dual role fighter or the F-111 cover [deleted] of the target. I say cover. I probably should say reach because range is important.

They will not cover all of those targets because we don't have enough F-111's to do that. We only have three wings of them. So, these F-111's will reach a [deleted] of the targets, but because we have limited quantities of them, they will only hit [deleted] percent of the targets.

Let me show you what those targets look like.

[Slide 23, F-4 and F-16 Maximum Range, has been deleted]

First, let me orient you to this chart. This is West Germany, East Germany, Czechoslovakia, and Poland. This [deleted] arc I have on this chart you will see on other charts. What it represents is about the maximum range that the F-4's and F-16's can cover.

So, anything in this forward portion is covered by F-4's and F-16's. You can see in that portion there are about [deleted].

The reason is because the newer fighters have more range than the older fighters.

[Slide 24, Other CINC Targets, has been deleted]

Now, let us look at other sites the CINC wants hit beyond the [deleted] area. These are the types: Bridges, railroad yards, command and control sites, SAM sites and nuclear and chemical storage. Those are all fixed sorts of targets.

In addition to that, there are an awful lot of mobile targets. I won't go through any of those, just to show you the vast quantities are here, but there are significant reinforcements in the back.

[Slide 25, Sorties Needed for Target Kills, has been deleted]

When you put that all together and you say how many sorties are required to cover these targets in the first [deleted] of the war, again, what I have done is rule out the F-4 and F-16. I come up with a figure of [deleted].

If you figure up what it would take to kill all those targets, you would need over [deleted].

In our current budget request we build 392 fighters for world-wide deployment which is not the number the CINC's would require, but it is certainly a reasonable number.

General Monahan will show you a chart later on that shows the emphasis that the CINC's have put on the dual-role fighter. It is probably the most significant emphasis I have seen from any of the Commanders on any program in the last few years.

NAVY CONSIDERED IN TARGET PLAN

Senator RUDMAN. Could I ask you a question on those charts for a moment? I understand in your planning you have to assume from your point of view that you have to get target coverage on all of those, but when the study was prepared, was there any consideration given to what percentage of those targets might be hit either by the Navy or Strategic Air Command, Tomahawk missiles, new stand-off missiles we are developing for the B-1B?

I want to ask you about that kind of planning, that kind of analysis that went into your target plan.

General Russ. That is an excellent question, sir. Let me say that those were considered. Now, I did not go in and allocate so many to the Navy and so many to everyone else.

What we found with the limited number of dual-role fighters we are buying is that we can't get anywhere near the number of sorties we need. We recognize the requirement will be grossly undermet.

But the Navy in general will not be operating in this deep strike area. The Navy will be operating on the northern flank, the southern flank and the coastal bases. They will not be getting into the deep central region.

It is a range problem. The Navy can not get deep into the central region.

Senator RUDMAN. They can't, but certainly some of our newer families of PGM's are: (a) going to reach that with a higher probability of hit and, (b) no reliance on weather or time of day; (c) less human cost.

Of course, I for one, as you probably know, have wondered why we have not spent more money on some of these PGM programs because in terms of what you are facing in that scenario, it is enormously logical that you would use more precision guided missiles, even those fired from aircraft 500 miles from the target.

General Russ. I could not agree with you more.

STANDOFF MUNITIONS

We are, as you know, developing a family of standoff munitions. Our initial family, of which some are in the inventory now and some will be in the next couple of years, are what I call the close stand-off, [deleted].

We stand off at [deleted] miles at low altitude. In essence, we are outside the terminal threat.

The next group that we are looking at, which is basically modifications to those weapons, allows us to stand off at [deleted].

We are now working on a further version and would have to discuss that in another hearing, but we are now working on a further version that will allow us to stand off at significantly greater ranges and have high accuracy and hopefully low cost.

The problem we have had in the past in trying to design and develop these sorts of standoff weapons is the cost. We can't afford to buy million dollar conventional weapons because we never are able to buy enough of them.

You can't fight a conventional war with high-cost weapons. So, you need to get weapons that are in the hundred thousands of dollars category, anywhere from \$400,000 to \$500,000 you can enough to strike targets.

When they start getting into the \$2 million range, that is a problem. That is the problem with MRASM. It is \$2 million a copy.

We will run into similar problems with cruise missiles that are as sophisticated as those missiles were.

Senator RUDMAN. I agree. What you are saying is that you could install 600 cruise missiles in Europe to target each one of 600 high value targets, let us assume conventional weapons because of political considerations, political in terms of what you are going to use.

With the amount of explosives that one of those can carry, that is probably not a terribly effective weapon against many of the sites that you show.

Is that correct?

General Russ. That is correct. Again, the amount of payload that we need is important.

In the future weapons we are looking at, we will be able to get a much higher payload. There are two things that have been holding us back in developing and procuring longer-range standoff weapons.

One is the engine, to be able to design and develop a low-cost engine. Now, we think we can do that.

The second one is navigation capability to get the required accuracy. It does not do any good to get in and get 90 meters accuracy. You have to be able to hit the target.

So, you need terminal accuracy. We now have systems in development which should give us those accuracies.

Senator RUDMAN. In the long run, of course, it seems to me that is where you are going to have to head.

F-15 SORTIES VERSUS STANDOFF WEAPONS

Another basic question which is difficult to answer is how many sorties in a real environment can you expect to conclude successfully with your \$40 million F-15 airplane and its highly trained pilot before it is lost—that is a very important question—in a high volume air defense environment. Those costs have to be considered.

General RUSS. It is very important. In fact, we look at that very closely because we are very concerned that we put the money in the proper pocket.

As you know, though, the cheapest way to deliver ordnance is direct delivery.

In other words, a fighter goes in and drops it and comes back. If he did not have any defenses to worry about at all, that is the cheapest way to do it because you have zero attrition.

On the other hand, stand off, depending on the range at which you stand off, tends to become, in most scenarios the most expensive because it has 100 percent attrition. It never comes back, and you have to put a lot of money in those standoff weapons to be able to do the job.

Senator RUDMAN. Of course, the aircraft tends to come back more. I suppose you have to put that in your formula also. The aircraft standing 50 miles off target with terminal guidance involved will have theoretically many more sorties to carry it to the target than the fellow who has to go down the smokestack.

General RUSS. Absolutely.

Senator RUDMAN. You know, I hope somebody down there is thinking about these kinds of decisions. We don't have either the time or the expertise to answer those here, that is for sure.

General RUSS. We have been accused before of not supporting stand off. That is not true. I don't know a fighter pilot in the world who would not like to have a standoff weapon that gave him some range from the target rather than have to go eye to eye with a gun or eye to eye with a missile. He would rather stand off and fire.

Senator RUDMAN. One of my staff has been to Eglin to review those programs for me. I understand you are working very hard on it.

It seems to me over the next 5 to 10 years you may have to rethink, if you have any technology breakthroughs in terms of terminal guidance, in terms of what you might need.

Dr. COOPER. I would like to make one point.

I am a proponent of standoff. Here we are talking about conventional payload.

If you are talking about a standoff weapon with a conventional payload to be launched from a tactical fighter, you are talking about a weapon that will have to run probably around 2,500 pounds. Maybe we can get it up to 3,000. That starts to push on the heavy end.

When you start looking at the payload factor, and you want to go 100 or 150 miles, the amount of weapon that is actually payload, is about a thousand pounds of high explosive, not nuclear explosive,

high explosive. That will demand accuracies in the order of a few meters for many of our targets, not tens of meters as we have today.

Guidance and control is expensive. The engine is expensive. So, our challenge is to try to get that type of accuracy on delivery systems that run hopefully a few hundred thousand dollars, not millions of dollars. That is the challenge that we have.

Also when you just look at the sheer magnitude of the problem of charting all those targets and not knowing at the start precisely where they are, that is a challenge, too.

The only caution I would lay out on the table is that it isn't always that easy. It is a real challenge.

Senator RUDMAN. If I were sitting where whoever sits over there and does this, I would want to look at things like bridges, certainly put as many of those in the target inventory and things that will have low risk to our pilots.

Obviously, the more movable and more difficult targets I assume you assign to aircraft.

MULTIPLE TARGETING

Dr. COOPER. That is right. Not to make light of your question about whether the Army and Air Force are both targeting the same target, right now it is a little bit like Custer's last stand. That is the classic target rich environment.

[Slide 26, Multiple Targeting, has been deleted]

We are looking at that. There are more than enough targets to go around. With the limited assets that we have, I want to assure you we are not multiple targeting the same target.

Senator RUDMAN. Why don't we move ahead. We are kind of getting close to our time here.

General RUSS. I won't go completely through this chart.

It is the same format as the previous chart.

[Slide 27, F-111 Use in Southeast Asia, has been deleted]

The bottom line is the F-4 and F-16, in the Southwest Asia scenarios don't contribute because they don't get to the major area that needs to be struck. Only the DRF and F-111 do.

The F-111 hits [deleted] percent of the targets. You can see there are [deleted] major targets that need to be struck up through this [deleted] that could not be struck unless you have the F-111 and dual role fighter.

PROCUREMENT STRATEGY

WE INTEND TO:

- BUY 260 - 280 FIGHTERS PER YEAR
- INSURE AT LEAST 40 PERCENT OF THE FORCE IS MULTI-ROLE AIRCRAFT
- INSURE QUALITY IMPROVEMENTS ARE MADE TO DO THE DEMANDING MISSIONS

SLIDE 28

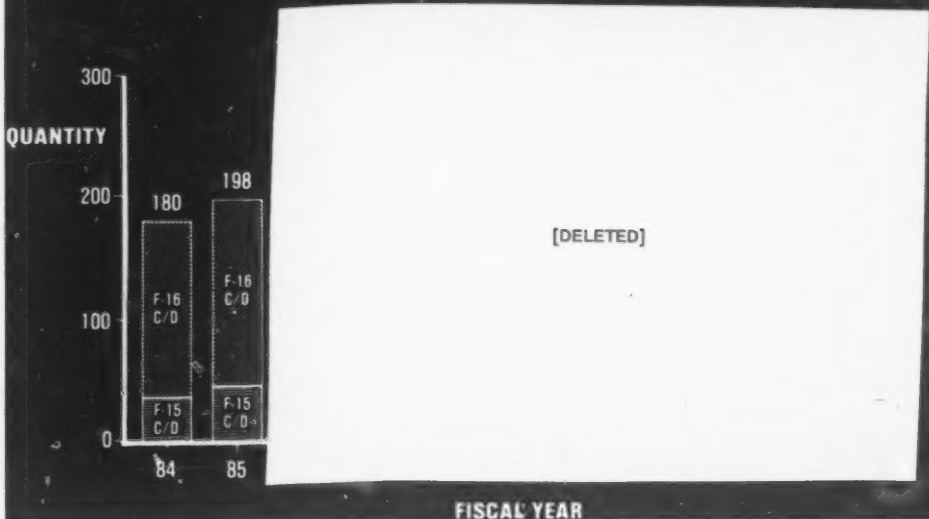
SUMMARY OF PROCUREMENT STRATEGY

Let me sum this up. Our procurement strategy in the next 10 years is to buy an average of 260 to 280 airplanes per year. We want to insure that at least 40 percent of our force is multirole.

We need to ensure certain quality improvements to the force to enable us to do the demanding mission.

FIGHTER AIRCRAFT PROCUREMENT

BY FISCAL YEAR



SLIDE 29

AIRCRAFT PURCHASES

Let me build you a chart that shows you how we would do what I have just discussed.

Dr. COOPER. This is the punch line of the whole briefing right here.

General Russ. Starting with the F-15C's and D's we would continue to buy the F-15C's and D's with the last buy in [deleted].

Then we would procure the F-15E as our dual-role fighter. We would level that at [deleted] per year with the last buy in [deleted]. That would give us a total of 392 F-15E's and that would make it about four tactical fighter wing equivalent.

We would continue to buy the F-16. Currently in 1985 we have 150. In 1986 we would increase that to 216 which General Monahan discussed.

We would want to continue to buy the F-16C's and D's throughout the timeframe. As we improve the F-16A's and B's and improve them to the C and D, we would expect by the latter part of the 1980's and first part of the 1990's we will want to improve the C and D.

F-16 FOLLOW-ON OPTIONS**REPRESENTATIVE TECHNOLOGIES THAT MAY BE APPLIED TO THE F-16**

- ADVANCED AVIONICS INTEGRATION
- FIRE/FLIGHT CONTROL INNOVATIONS (AFTI)
- DORSAL FAIRING FOR EXPANDED AVIONICS VOLUME
- NEW WING DESIGNS FOR EXTENDED RANGE/WEAPONS PAYLOAD
- INCREASED THRUST ENGINE

SLIDE 30

F-16F

Therefore we have planned for an F-16F which will come into the force in the early 1990's. Now, that F-16F would be primarily an air-to-ground airplane and single seat. We don't know exactly what it would look like, but here are some of the representative technologies that could go into that aircraft: Advanced avionics integration, we are doing work on that right now; fire flight control innovations which we call our AFTI program. We have testing underway at Edwards at the current time on airplanes that fly sideways and maneuver in different ways; DORSAL fairing for expanded avionics volume; cranked arrow wing which will give extended

range. With this increased weight and design, we are preserving the option for an increased thrust engine.

ADVANCED TACTICAL FIGHTER

Then, in 1993, we would start the advanced tactical fighter and that would enter the inventory in 1995.

ADVANCED TACTICAL FIGHTER

NEW FIGHTER DESIGN WITH AIR-TO-AIR COMBAT PERFORMANCE TO MEET THE PROJECTED THREAT

- EFFICIENT SUPERSONIC PERFORMANCE
- LOW SIGNATURES
- HIGH MANEUVERABILITY
- ADVANCED INTEGRATED AVIONICS/ARMAMENT
- LONG RANGE
- SHORT TAKEOFF AND LANDING
- SUSTAINABILITY/SUPPORTABILITY
- INHERENT AIR-TO-SURFACE CAPABILITIES

SLIDE 31

ATF CAPABILITIES

Here are the types of things that would make up the advanced tactical fighter. First, we would look at efficient supersonic performance. By that I mean the aircraft would be designed to cruise in the supersonic range without after burner.

We will look at [deleted], high maneuverability, advanced avionics and armament and long range so that we can take the fight to the enemy; short takeoff and landing so that we can operate from damaged airfields, and, most important, or I should say of equal importance to all of these performance indices will be the sustainability and supportability.

We want to make sure we can fly the airplane and not sit it on the ground.

ENGINE ROADMAP

- NEAR TERM - IMPROVED RELIABILITY AND MAINTAINABILITY
 - F-100-PW-220 AND/OR F-110-GE-100 FOR F-15C/D, F-16C/D AND DUAL ROLE FIGHTER
- MID TERM - COMPETE FOR HIGHER THRUST VERSION OF BOTH ENGINES
 - PROVIDE FOR FOLLOW-ON F-16
 - EXTEND F-15 CAPABILITY TO MEET THREAT
- LONG TERM - DEVELOP ADVANCED TECHNOLOGY ENGINE FOR ATF

SLIDE 32

ENGINE ROAD MAP

Accompanying that chart is our engine road map. We have divided it into three sections, near, mid, and long term.

In the near term, we have just completed our competition for improved reliability and maintainability in our engines.

In the midterm we will preserve the option to compete for thrust upgrades of those, and, by that, I am talking about the end of the 1980's and early 1990's, either for the follow-on F-16 or, should we want to, some of the F-15's. We are preserving that option. In the long term, for that new aircraft, that new generation of advanced tactical fighters, we would develop an engine that would power that aircraft and that has to be a different type of engine, naturally, because it operates in an entirely different environment.

[Slide 35, Engine Development, has been deleted]

This force then in [deleted].

[Slide 34, Force Description, has been deleted]

Here is what the force looks like. Recall in 1984 we had 36 wings. By this timeframe out here, that gradually stabilizes at 40 tactical fighter wings.

We have multirole [deleted].

We have also the desired performance and specialized capability in the air-to-air and air-to-ground arena such as AMRAAM and LANTIRN.

Let me go back to this chart because I think it is important. You brought the question up when you initially opened with your remarks, sir.

[Slide 35, Total Aircraft in Budget, has been deleted]

What I have superimposed on this chart are these numbers of fighters. This is what currently is in the 1985 budget and the 1985 FYDP. We scaled those down, reduced over 400 airplanes and \$14 billion down to this level and we believe a stabilized program of

276 airplanes a year across the next 10 years is a very doable and meaningful force structure.

AIR FORCE FIGHTER ROADMAP SUMMARY

- CONTINUE COST EFFECTIVE MODIFICATIONS TO IMPROVE RELIABILITY, MAINTAINABILITY, SURVIVABILITY AND COMBAT EFFECTIVENESS
- INCREASE F-15 AND F-16 PRODUCTION RATES TO FLESH OUT, MODERNIZE AND SUSTAIN BOTH THE 40 TFW AND AIR DEFENSE FORCES
- EXPLOIT GROWTH POTENTIAL OF CURRENT AIRCRAFT AND ENGINES
 - PROCURE DUAL ROLE FIGHTERS TO MEET THE NEED FOR INCREASED RANGE/PAYLOAD AND DAY/NIGHT UNDER WEATHER ATTACK
 - CONTINUE DEVELOPMENT LEADING TO LATE 1980'S PROCUREMENT OF THE F-16F FOR DAY/NIGHT AIR-TO-GROUND OPERATIONS WITH SECONDARY AIR-TO-AIR CAPABILITY
 - FOLLOW UP ALTERNATE FIGHTER ENGINE PROGRAM WITH COMPETITION FOR MID TERM PERFORMANCE GROWTH
- DEVELOP THE ADVANCED TACTICAL FIGHTER WITH A NEW ADVANCED ENGINE TO REPLACE THE F-15 AS THE FIRST LINE AIR-TO-AIR FIGHTER WITH AN IOC IN THE MID 1990's.

SLIDE 36

SUMMARY

This is my last slide. Let me summarize by saying that I pointed out that we are doing some cost-effective modifications to improve our reliability and maintainability as well as survivability of our forces.

We are going to continue to increase the F-15 and F-16 force and build to our 40 tactical fighter wing force. Then we are going to exploit the potential of those airplanes, F-15's and F-16's, and the engines long before we build the new airplane which will not come into the inventory until 1995 and that is the advanced tactical fighter with the advanced engine.

DUAL ROLE FIGHTER

We have about four or five charts on the dual role fighter. This is the selection of the F-15E. I have already discussed this night and all-weather, deep interdiction aircraft augmenting our all-weather force.

When we ran the evaluation between the F-15E and F-16E, we came up with this result. Either airplane would satisfy the air-to-air requirement.

DUAL ROLE FIGHTER



MODIFIED F-15 WITH SIGNIFICANTLY IMPROVED RANGE/PAYLOAD
 PROVIDES NIGHT & UNDER WEATHER, DEEP INTERDICTION
 AUGMENTS LIMITED F-111 FORCE TO COVER FULL SPECTRUM OF TARGETS
 CONTINUES DEVELOPMENT IN FY 85

DUAL ROLE FIGHTER EVALUATION SUMMARY

AIR-TO-AIR

EITHER AIRCRAFT WILL SATISFY REQUIREMENT

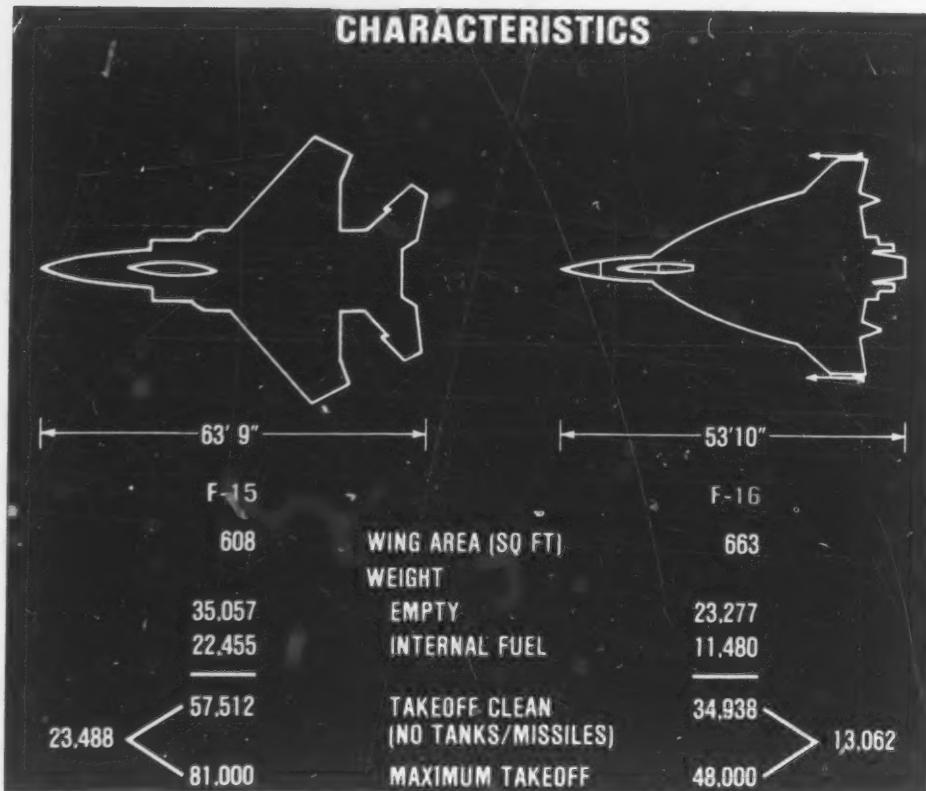
AIR-TO-SURFACE

ONLY F-15E ADEQUATELY MEETS REQUIREMENT

SLIDE 37

AIR-TO-SURFACE REQUIREMENT

However, only the F-15 adequately met the air-to-surface requirement. Let me show you why.



SLIDE 38

CHARACTERISTICS

This is a comparison between the two airplanes, how big they are, how much they weigh, how much fuel they will take.

What this says is that in the F-15 you have 23,488 pounds available to carry, either ordnance or gas.

The F-16 has 13,062. Right away he can carry a lot more ordnance than he can and go a lot farther.

[Slide 39, Range Comparison, has been deleted]

This is a comparison of the range.

I just bring one chart up to show you that. What this says is that you can either base them in the United Kingdom or you can base them in Germany. Let us say we base them in the United Kingdom first.

The F-15E based in the United Kingdom can go [deleted] miles and cover [deleted] percent of the target base.

If you base the F-16 in England, they can only cover [deleted] percent of the target base. That is the difference.

However, what if we based them in Germany? Well, it is not quite the same. You get about a [deleted]-percent increase in the F-15E.

If I had time, I could take you through and show you the other theaters and it becomes even more dramatic in the other theaters.

DRF COST SUMMARY		
(TY \$/MILLIONS)		
	F-15	F-16
DEVELOPMENT	294	535
PRODUCTION (392 ACFT)		
C/D MODEL	15322	7914
DELTA	1154	2657
DRF	16476	10571
DRF PROGRAM DELTA	1448	3192

SLIDE 40

COST OF F-15 AND F-16

Here is the cost. To develop the F-15E, the research and development cost is \$294 million in then-year dollars.

F-15 UNIT COSTS (FY 83 \$ IN MILLIONS)

	F-15C	F-15E	DELTA
FLYAWAY	21.8	23.1	1.3
PROCUREMENT	25.5	27.5	2.0
PROGRAM	25.5	28.2	2.7

FLYAWAY	AIRFRAME, ENGINE AND AVIONICS		
PROCUREMENT	SAME PLUS	SUPPORT EQUIPMENT, PUBLICATIONS AND FACTORY TRAINING	INITIAL SPARES
PROGRAM	SAME PLUS		RDT&E AND MILCON

SLIDE 41

COMPARISON COSTS

A similar comparison with the F-16 is \$535 million. The major difference is that there is no structural change of any nature for the F-15.

This is mainly avionics and structure.

Our road map calls for us to buy the F-15 and F-16 throughout the time period. If we did not buy the F-15E, we would then have to restructure our whole balance. If we did that, we would continue to buy the C's and D's.

So, we make the assumption we are going to buy F-15's and F-16's throughout the next 10 years. That is the cost of buying those.

Now, that is the cost of making 392 of those E models. So, the total cost of the dual-role fighter is there and the delta program cost is here.

This delta program cost is a combination of what it takes to modify the airplane and what it was in R&D.

So, it is cheaper in one sense to buy the F-15E than it is the F-16E. I recognize the F-15 is always more expensive than the F-16. There is no way you can get around that. Had we gone in with that sort of rule that the cheapest airplane was going to win absolutely, then we wouldn't have had to do any comparison because there is no way you can get the F-16 up to the cost of the F-15.

Dr. COOPER. To put it another way, I was going to say with your numbers it costs roughly \$3½ million to convert an F-15 to an F-15E and about \$8 million in then-year dollars to convert an F-16 to an F-16E. More than two to one.

General Russ. This is the breakout Dr. Cooper is talking about in then-year dollars. This is 1983 dollars.

[Slide 42, CINC Comments on DRF, has been deleted]

CINC'S COMMENTS ON DRF

These are the comments that I mentioned before. I think it is important because I have been around the Pentagon quite a few years and I think this is the first time I have seen the significant comments of the CINC's come in on any one program.

The admiral of the Pacific Command said the dual-role fighter may well be the single most important item in the fiscal year 1985 budget. I thought that was significant.

The commander in Europe said the dual-role fighter is one of the most important procurement decisions to be made in this decade.

I have tried to give you a feel for where we believe we should be going in the next 10 years. I have tried to show you how important some of these programs are and specifically how important the dual-role fighter is to the Air Force as well as to the CINC's and the national defense. I hope we have communicated that to you.

Senator RUDMAN. I think that is a very excellent presentation. I am sorry more of the subcommittee members were not here this morning. It certainly gives a good overview.

I really have just a few questions. I have asked a number as we have gone along here. Let me ask you several.

F-4 UPGRADE

First, in view of the number of F-4's that we have, the E's, and so forth, give me a reaction to the proposal that is over there to upgrade them. I am not saying instead of.

Dr. COOPER. Sir, as you are probably aware, for the last 4 months we have had an ongoing dialog with Dr. DeLauer on the reengining of the F-4, upgrading the avionics and putting fuel tanks on it.

No. 1, we have done an analysis of that. What we concluded is that for comparable dollars or slightly more, 10 percent, I don't know the exact number, but in the same ball park, we can buy new F-16's. That is consistent with the road map.

We have no requirement in the Air Force to reengine the F-4. However, we wholeheartedly support Dr. DeLauer's proposal to do a demonstration to gain access to a technical data package in case some of the other nations around the world that aren't going to buy F-16's, that aren't in the position to buy new aircraft but have F-4's, want to upgrade it.

UPGRADE COST PROJECTION

Senator RUDMAN. What was the cost projection for the upgrade?

Dr. COOPER. On the order of \$10 million a copy.

Senator RUDMAN. What is the cost of an F-16?

Dr. COOPER. Flyaway cost of an F-16 in comparable dollars is \$12 to \$14 million. It cost more to buy new aircraft, but the thing to keep in mind is you have a new aircraft with modern avionics whereas if you upgrade the F-4, you still have a 20-year-old aircraft.

Senator RUDMAN. Hypothetically you are replacing these F-4's that are coming out of service with F-4E's; is that correct?

Dr. COOPER. No, sir. If we could have the other slide for a minute, I was going to make a point, but in the interest of time, I did not.

General RUSS. Most of those are being replaced by F-16s.

Dr. COOPER. I think it is worth making this point.

Senator RUDMAN. As you look at your chart, of which we have a copy, it appears the top line of that chart showing increments in 1982 and 1983, dual role fighter F-16, that is where the F-4D's and E's fell off rather remarkably.

It seems they would be replaced by both the F-15 and F-16.

General RUSS. Yes.

Senator RUDMAN. Take the latest model F-4 that is manufactured. There are some 300-some odd of those in the force.

What do you have when you upgrade it in terms of range, speed, payload, maneuverability compared to the F-15 and F-16?

General RUSS. If you upgraded it with new avionics and new engines, you get better fuel consumption because it is lighter.

COMPARISON OF F-4 TO F-15 AND F-16

Senator RUDMAN. Could we have a comparison for the record rather than guess at it here today? Give us an approximation.

General RUSS. We did an analysis of the F-4 and upgraded F-4 and the F-16 in our force. I will be glad to provide you a summary.

[The information follows:]

MODIFICATION OF F-4's

The Air Force conducted a quick look cost comparison to assess the cost effectiveness of modifying F-4's with new engines, upgraded avionics and a conformal fuel tank vs buying new F-16 C/D's. Two life expectancies were used for the F-4; 1998 based on current maximum life projections and 2006 based on extended life modifications (\$1.0M/aircraft). This modification would only be applicable to a limited number of aircraft since the life expectancy of the majority of the F-4 fleet does not extend past the early 1990s. The F-16 life was assumed to be 25 years. Current (FY 83) flyaway costs were: F-4, \$7.2M and F-16 C/D, \$13.3M. Assumptions used for the comparison were conservative and generally favorable to the F-4 case. For example, the modified F-4 was assumed to be as capable as the F-16, and F-4 salvage value from foreign sales was assumed to be zero. Based on these assumptions, the F-4 option is from 15% to 170% more expensive than the F-16 depending on life expectancy and date of implementation (1988 or 1991). The proposed F-4 modifications provide modest performance increases (contractor estimates) but far exceed F-16 cost. To approach the 15% range of delta cost, the F-4 would have to be extended beyond its expected 8,000 flying hour life. Extension of the life from 8,000 to 11,000 hours (additional 8 years of life) would be unprecedented. Additional costs, not included here, for support, manpower, aircraft maintenance and training could be substantial and would further increase cost differences.

F-111's

Senator RUDMAN. The other question I have is this: Looking at the targeting information for Europe and assuming that for Asia it is even more extreme, I think you said, in terms of what the requirements are, did anyone ever give consideration to looking at whether or not we might be well served over the long range to buy any more of the F-111's?

General RUSS. Yes, we did; in fact, we considered that. That was an option we looked at. But since the line was closed and we would have to open up the line and start over again and then when we looked at the cost of the F-111 and starting it up and improving the avionics, we found it was more costly to do that than to modify the F-15's where we currently have the line going.

We looked at the Tornados. We looked at everything we could think of, sir.

Senator RUDMAN. I think that is probably about all I have time for. We will have some questions for the record, I am sure.

SUMMARY OF DR. COOPER

Dr. COOPER. I want to make three points. If you look at what we are doing over the next decade right in here, we are going to add the ATF. In the next decade we are trying to squeeze as much capability out of the current generation aircraft as we possibly can.

We are not proposing to start any new production line. The additional capability that we are looking for, is the additional capability in the F-15E, and this really is a modest amount, we are talking less than 400 aircraft, and we want to flesh out and modernize our force structure with the F-16.

I would like to make the point that we love the F-16. In fact, look at how many F-16's we are buying. We are proposing to buy 216 a year until [deleted] making perhaps modest improvements at this point.

We don't get to new aircraft [deleted], and I think that is optimistic. That assumes the R&D program on the books right now.

Senator RUDMAN. It will need enormous breakthrough in technology of some sort to have you decide to start moving toward production in 1993. There is nothing on the horizon in terms of lift, engines, and so forth, that is that striking yet. There may be tomorrow.

Dr. COOPER. It is not so much a breakthrough, Senator it is what we think we can do, and what we are going to have to be able to do. Part of the effort is to develop the two-dimensional nozzle for the engine.

I think the engine is the long pole in the tent. That two-dimensional nozzle gives capability for short takeoff and landing. We are starting to press real hard on that this year.

We had research and development money in that last year. We recently awarded contracts to both General Electric and Pratt & Whitney totaling in excess of \$400 million combined to start working on that. That will have to stay apace, though, if we are going to meet the milestones.

General RUSS. It is important to note if that advanced tactical fighter does not have the capability we are asking for it to have, then it doesn't make any sense to bring it in when we plan to bring it in.

We ought to delay it until we have the technology. We ought to continue to improve and get the maximum we can out of our current generation fighter. That is what we will do.

We believe we have the engine technology and airframe technology in hand, at least well enough mature that through some series

of tests between now and the end of the 1980's we will be able to do that.

If not, we will be the first one to say we are a little premature on it.

Senator RUDMAN. I would simply say that I would like you to plan sometime in the next few weeks to have your staff come by the office and talk to me about that. Evidently I am missing something about some of the things you are doing, particularly in the airframe.

Dr. COOPER. About the ATF——

Senator RUDMAN. I am familiar with that. I am talking about the technology that is moving along, with the airframe in particular. I am familiar with what is being done with the engines.

Dr. COOPER. We will be happy to.

SUBMITTED QUESTIONS

Senator RUDMAN. I think we have gone about as far as I can.

We will have additional questions which we will submit to you for responses in the record. They will be inserted at this point.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

USE OF LANTIRN WITH TACTICAL FIGHTER WINGS

QUESTION: You stated a requirement for 40 and 44 tactical fighter wings and a much higher number for JCS planning purposes. Your testimony points out that all weather and day/night capable units are much more productive than less capable units, perhaps as much as four times more productive.

Using the current force capabilities as a base line, provide for the record by type of aircraft the total sorties generated and effective yield of the future force with LANTIRN for 36, 40 and 44 tactical fighter wings.

ANSWER: Night and adverse weather capable aircraft are more productive in that their window of operation is greater than that of a day visual system. For example, in Europe during January and February, there are only 4 1/2 hours per day that we can employ a day visual system. By providing a night and low visibility capability such as LANTIRN, the employment window is opened to approximately 17 hours a day. However, the fourfold increase in operating window does not equate to a fourfold increase in productivity. Productivity is dependent on sortie rates which, in addition to operating window, is driven by factors such as spares, munitions and crew ratios.

The current night and adverse weather air-to-ground capability consists of three wings of F-111s. Our baseline for comparison of present to programmed night and adverse weather capability is the total wartime sorties of the F-111 force during the first 30 days of a NATO war (WMP-5 ANNEX B, FY 85 PB). By adding the planned F-16 LANTIRN capability, adjusted by spare and training factors, the LANTIRN-equipped F-16s provide a 95% increase in night under the weather capability for the same period of time. We triple our current night/weather sortie capability when we achieve our programmed F-15E force. Thus, with the addition of LANTIRN on the F-16 and the F-15E, our night and under the weather sortie availability will be four times greater than our current capability. More important, the productivity of each night and under the weather sortie will be increased by an even wider margin.

INCREASED COSTS OF THE AVIONICS SYSTEM

QUESTION: You are requesting \$7.7 billion for the 1985 production of 34 B-1Bs. I note the Air Force's statement that the program is ahead of schedule and within costs. However the last SAR reported a 30 percent increase in the cost of the avionics systems--up about \$827.2 million in constant 1981 dollars. What's causing this increase and how are you absorbing it so as to keep the total program within ceiling?

ANSWER: The first B-1B Selected Acquisition Report (SAR) Development Estimate for avionics was based on data current as of 31 December 1981, six months before the initial avionics contracts were awarded. The December 1981 data were composed of preliminary proposals, parametric estimates and industrial experience. Since that time, we have acquired detailed functional estimates based on actual negotiated contractual documents, firm multiyear procurement proposals and refined assessments of contractor performance.

Increases in avionics cost estimates have been offset by such factors as decreases in the airframe and engine cost segments of the B-1B production program.

These and other similar refinements are reflected in the latest SAR. The total budget is still within the \$20.5 billion (FY 1981 \$) estimate certified by the President in January 1982.

AVIONICS CONTRACTORS DELIVERY RATES

QUESTION: The staff has been briefed about Air Force concerns over the ability of the avionics contractors to support rate production. Have either of them ever had a contract of this magnitude? What persuades you that they can meet the required delivery rates for the 1985 program?

ANSWER: The two associate contractors for B-1B avionics are Boeing Military Airplane Company (BMAC) and AIL Division of Eaton Corporation.

BMAC is one of the largest avionics suppliers in the country. The B-52 Offensive Avionics System (OAS) by BMAC is very similar in cost, schedule and complexity to the B-1B offensive avionics effort. We are confident that BMAC will be able to support the B-1B program at rate production.

The Defensive Avionics contract at AIL is larger than any previous single AIL contract; however, the in-house effort is less labor intensive than some prior contracts and is well within AIL's capacity. Producibility enhancements, subcontracting and second sourcing are utilized, where appropriate, to ensure availability of sufficient parts and materials to support rate production. Production Readiness Reviews are conducted at AIL and all major subcontractors. These reviews verify that the present and planned facilities, equipment, materials, personnel and management systems will support rate production.

MANAGEMENT RESERVE FOR AVIONICS

QUESTION: How much management reserve does the program have set aside for the avionics programs and how much more do each of the contracts have?

ANSWER: Each of the associate contractors sets aside a percent of the negotiated contract amount as management reserve. The respective program managers hold these reserves to manage cost fluctuations within the scope of their various contracts. These reserves are not under the control of the B-1B Program Office and, therefore, should not be construed as program management reserves.

In the financial analysis section of the January 1984 B-1B Cost Recertification, the following management reserve data were provided:

Management Reserve Track - Development (TY \$ Million less fee)

	As of 1 Oct 82	As of 30 Sep 83
Boeing	50	51
AIL	20	20

Management Reserve Track - Production*
(TY \$ Million less fee)

	As of 1 Oct 82	As of 30 Sep 83
Boeing	40	32
AIL	17	20

* Reflects contracts signed as of the end of the reporting period

PRODUCTION SCHEDULE FOR B-1B

QUESTION: Are they meeting the production schedule today?

ANSWER: The avionics contractors are behind their previous internal schedules. Critical deliveries to support aircraft production schedules are being met. The avionics contractors are replanning their internal schedules to reflect current delivery needs and will catch up to meet production rates.

PRODUCTION SCHEDULE PROBLEM

QUESTION: What is the nature of the problem and what are you doing to keep it under control?

ANSWER: AIL's major problem area has been the production of certain radio frequency (RF) subcomponents to support rate requirements.

AIL has assigned a task force to correct this potential problem. They have positioned AIL employees in their suppliers' plants to analyze manufacturing procedures. They have identified and are developing additional sources for these RF components. They have standardized requirements and obtained approval to modify specifications whenever applicable and prudent. Several redesign efforts to reduce manual calibration time have also been implemented. Our evaluation of AIL's performance is that they are meeting their challenges head on and the outlook is improving.

Boeing's difficulties with the AP101F processor, developed by IBM, have been resolved. Westinghouse was late on their initial deliveries of the offensive radar and its initial software package. Boeing has aggressively pursued this matter. Internal work-arounds and catch-up schedules have been developed and implemented. The Air Force System Program Office is closely tracking the corrective actions and forecasts no slips to Air Force schedules.

B-1B MODIFICATION IN FY 86

QUESTION: Would you explain why there is \$13.9 million for B-1B modifications planned in FY 86 if everything is fully planned into the program today?

ANSWER: The modification account described in the FY 1985 President's Budget for FY 1986 is for Class III modifications -- deficiency corrections for aircraft already delivered or too far along in production to be changed when a correction is identified. We are evaluating this potential activity and its associated funding requirement for next year's budget.

The FY 1986 President's Budget will be based on established

requirements. However, it is a standard planning factor to establish a modification account for deficiencies that are discovered during test and evaluation which could potentially impact crew safety, reliability, etc.

Although modifications funding is outside the B-1B \$20.5 billion (FY 1981 \$) acquisition baseline, it is a normal ownership cost for programs with concurrent testing and deliveries stretching out over several years.

CONSIDERATION IN STRETCHING THE B-1B PROGRAM

QUESTION: Is the Air Force considering stretching out the B-1B program for either affordability reasons or to reduce the impact of dropping production from 48 per year to zero?

ANSWER: The original B-1B program, as proposed by the President and approved by Congress, was based on establishing an early initial operational capability and ensuring the program was as cost effective as possible. The Department of Defense is solidly behind the Reagan Strategic Program as described in October 1981. This program procured 100 B-1Bs within a baseline of \$20.5 billion (FY 1981 \$) and has not changed since approved by Congress. There are no plans to change procurement of 34 aircraft in FY 1985 and 48 aircraft in FY 1986.

PRODUCTION OF 100 B-1B AIRCRAFT

QUESTION: What assurances can you give that B-1B production will stop with 100 aircraft?

ANSWER: The President's strategic bomber modernization program exploits the synergism inherent in a combined B-1B and Advanced Technology Bomber (ATB) force. By fielding a full B-1B operational capability with 100 aircraft by 1988, we markedly strengthen our strategic nuclear deterrence at a crucial period. In so doing, we allow the time necessary to develop the ATB at the fastest prudent pace for deployment in the 1990s.

The Air Force has been diligently implementing these two bomber programs since 1981 and can report that both are progressing well. One of the fundamental precepts of the modernization program cited by the President was that building two bombers will stimulate competition.

Both programs have been very responsive to this approach which has resulted in excellent cost and schedule discipline among the contractors. We expect to field the 100 B-1B force and the ATB force as originally planned.

FUNDING OF INITIAL SPARES

QUESTION: The \$1.5 billion budgeted for spares before you planned to buy your spares as part of the production contract is the lowest of all major programs at 5.9 percent. You have rolled the \$159 million saved by buying spares on the production contract back into spares. How much more is needed to adequately fund initial spares?

ANSWER: Given our past provisioning efforts and future projections, the \$1.5 billion is sufficient to satisfy the B-1B initial spares requirements.

B-1B SIMULATORS

QUESTION: You are requesting \$157.9 million for procurement of 3 B-1B simulators, the design of which will not be completed until late in 1985. On the other hand your R&D summaries state that production options will be exercised for only 2 trainers. Why should we fund the procurement of either 2 or 3 simulators concurrently with the design, development and testing in 1985?

ANSWER: The simulator procurement request of \$157.9 million is consistent with the B-1B simulator development program and its acquisition strategy. The FY 85 request for three devices includes funds for two Weapon System Trainers (WST) and a cockpit procedures trainer, software support center, flight station equipment and spares. The Critical Design Review (CDR), which is the formal release to production, is the milestone that Government and industry generally agree is where the simulator design is sufficiently firm to provide low cost and schedule risk for the exercise of production options. The CDR is planned for completion in May 1985. This schedule is also consistent with the aircraft software Physical Configuration Audit (PCA) which provides the B-1B software baseline at aircraft Initial Operational Capability (IOC). This will provide a stable aircraft design for simulation.

Early purchased production flight station equipment or other simulator subsystem hardware/software and the Software Support Center (SSC) are programmed to reduce program cost risk and to achieve concurrency through integration with weapon system development. These efforts should reduce development flow time by allowing parallel activities during system validation, shorter test requirements, and promote integration of both aircraft and peculiar simulator changes into the Weapon System Trainer to achieve concurrency. The SSC is proposed by both contractors as being integral to the program development of an in-house configuration control system to implement aircraft changes concurrently with the simulator. The delivered SSC will also be the basis of the Air Force configuration management system. This acquisition approach is integral to the planned \$300M (BY 81) simulator program.

Delays or slips of production funds to later years negates the advantage discussed above, add to program cost, and will preclude the Air Force's ability to achieve concurrency. The slip of production money to FY 86 will delay simulator delivery one year and eliminate contractor's flexibility to accelerate schedule as part of the Phase II proposals, which is an integral part of the acquisition strategy. The delay of the Cockpit Procedure Trainers (CPT) will mean crews go directly from academic instruction to flight training without benefit of safety and emergency procedure training prior to flight. As a result, the crews' first exposure to emergency and abnormal conditions may be in flight.

F-15 AND DUAL ROLE FIGHTER (DRF)

QUESTION: What weapons will it carry--dumb bombs, terminally guided munitions or missiles?

ANSWER: The F-15E (Dual Role Fighter) will be capable of delivering most current and future conventional and tactical nuclear munitions. Selection of the munitions load for each wartime mission will depend on the target, enemy defenses, weather, etc. However, we plan to use the following as typical F-15E munitions:

Air-To-Air

AIM-120 AMRAAM
 AIM-9 Sidewinder
 AIM-7 Sparrow

Air-To-SurfaceDirect Attack Weapons

MK-82 General Purpose Bomb
 MK-84 General Purpose Bomb
 CBU-58 Cluster Bomb Unit
 Tactical Munitions Dispenser (TMD) with associated submunitions
 MK-20 Rockeye Cluster Bomb
 Durandal Airfield Attack Weapon

Standoff Weapons

AGM-65 Maverick
 GBU-10 Laser Guided Bomb
 GBU-12 Laser Guided Bomb
 GBU-15 Electro-Optical (EO) Guided Bomb
 GBU-22 Low Level Laser Guided Bomb
 GBU-24 Low Level Laser Guided Bomb
 Joint Tactical Missile System (JTACMS)
 AGM-130 Powered GBU-15 Guided Bomb

Special Weapons

B-61 Nuclear Bomb

F-16 DUAL ROLE FIGHTER

QUESTION: Isn't the current F-16 already a dual role air-to-air and air-to-ground fighter today?

ANSWER: The F-16 is a highly capable swing or multi-role fighter possessing air-to-air and air-to-surface capabilities within its range and payload limitations. The Dual Role Fighter (DRF) will be capable of performing the complete spectrum of air-to-air and air-to-surface missions. Specifically it will have a day/night, adverse weather interdiction capability with required range/payload to augment the F-111, while retaining the basic F-15 all-weather air-to-air capability. The F-16 C/D does not have the range/payload capability to meet the dual role fighter requirement.

TWO WARM AIR FORCE FIGHTER PRODUCTION LINES

QUESTION: If part of the rationale was to maintain two warm Air Force fighter production lines, what is the minimum number of F-15 needed per year to keep the base warm?

ANSWER: While there are potential benefits to maintaining two fighter production lines, this was not a factor in the Dual Role Fighter or increased F-15 production rate decisions. The F-15E was chosen because it was the most cost effective aircraft for the mission. Further, F-15E production will come from planned F-15 procurement, it is not additive. The planned F-15 production rate resulted from increased force structure requirements in response to a growing threat.

F-15 SPARE PARTS

QUESTION: Why won't the regular procurement of F-15 spare parts keep the F-15 peculiar portion of the base warm since the airframe and engine manufacturers have several other Air Force and Navy fighter contracts?

ANSWER: Aircraft production requires special tooling to manufacture structural parts such as large castings and forgings, wings, tails, etc. It also requires trained people, manufacturing test equipment, production tooling, etc., to assemble all parts into a complete aircraft. None of these large parts, equipment, or people would be required just to manufacture replenishment spare parts for existing F-15 aircraft.

B-52s & B-1Bs IN CONVENTIONAL TACTICAL ROLE

QUESTION: Your fighter road map indicates that the ability to strike deep targets is a major consideration. If B-52s and B-1Bs can be used for strategic strikes at deep targets, what physically prevents their use in a conventional tactical role, as was done in Vietnam, before the war escalates to a strategic nuclear exchange?

ANSWER: AF currently has plans for using the non ALCM B-52s for conventional operations in support of theater commanders. The non ALCM B-52 will maintain its conventional role through the mid 90's, and programs to enhance their conventional capabilities are under way, including the procurement of a conventional standoff weapon. The B-1B will be our primary SIOP penetrating bomber for the foreseeable future, however, it could be employed in the conventional role, if required.

NEED FOR A LONG RANGE DUAL-ROLE FIGHTER

QUESTION: It seems such an application has as much potential deterrent value as holding them for the strategic exchanges that every one hopes to avoid? Why then do you need to procure a long-range dual role fighter?

ANSWER: As is the case for all conventional forces, should deterrence fail, we need to be able to prosecute the war at the lowest conflict level and win. The dual role fighter (F-15E) is a major element in our ability to hold many of the enemy's high value rear area targets at risk. Some of the targets, as you suggest, could be hit with strategic assets. Our current conventional planning takes this capability into account, particularly in the maritime role.

The dual role fighter (F-15E), on the other hand, increases our conventional penetrating capability and augments the limited number of F-111s in the Offensive Counter Air and Interdiction role. The combined effectiveness of the F-15E, when added to the F-111, will serve to increase the deterrent value of U.S. conventional forces and raise the theater nuclear threshold.

F-15E ADVANCE PROCUREMENT FUNDS

QUESTION: I understand the budget was prepared to fund either the F-15 or the F-16 as the DRF. Since you selected the F-15, which has the lower incremental cost, by how much have you overstated the \$26.6 million request for F-15E advance procurement funds?

ANSWER: Although the total incremental development and production costs for the F-15E are significantly lower than the F-16E, production start-up requirements such as production tooling, long

lead parts, etc., in FY 1985 to support initial procurement of aircraft in FY 1986 do not permit us to reduce our FY 1985 request. Significant savings will be reflected in later years.

INCREMENTAL COST OF THE F-15E

QUESTION: In response to a written question last year, two changes were identified which would drive up the incremental cost of the F-15E. Does the proposed DRF have the 9G wing enhancement and automatic terrain following? What are their costs?

ANSWER: The F-15E will have both 9G capability and automatic terrain following/terrain avoidance (auto TF/TA) capability.

The auto TF/TA capability is provided by LANTIRN. F-15E costs for auto TF/TA are limited to integration tasks.

During development of the tactical fighter roadmap, we determined that F-15C/D aircraft required the 9G capability regardless of which aircraft was selected as the dual role fighter. Therefore, we have included cost for this capability as a part of F-15C/D cost. Cost estimates for these capabilities are (\$ in Millions):

	RDT&E	Production
9G (F-15C/D MSIP)	2.9	53.0
Auto TF/TA (F-15E only)	24.0	0

INCREASE FOR F-15 GROUND SUPPORT

QUESTION: You are seeking more than twice your 1984 funding for F-15 ground support equipment, up to \$357 million. What will this increase provide and what's the impact of holding that funding to last year's level?

ANSWER: The increase in support equipment funding in FY 85 is directly related to the Multistaged Improvement Program (MSIP). Most MSIP configuration changes were incorporated in production aircraft in FY 84. The new MSIP radar will be introduced with the FY 85 production buy. If funding is held at FY 84 levels we will not be able to provide O&I equipment for support of MSIP aircraft. The FY 85 PB request supports our plan to upgrade the Avionics Intermediate Shop (AIS) and TEWS Intermediate Test Equipment (TITE). In addition, the FY 85 request will provide Depot Support Equipment for the new Tactical Electronic Warfare Set and other new MSIP Avionics Equipment. The FY 85 program will also provide new support equipment for the Alternate Fighter Engine (F100-220) which is being procured for F-15s beginning with the FY 85 aircraft buy. Failure to make the upgrades will force us to rely heavily on Interim Contractor support, curtail sustaining engineering for the Aerospace Ground Equipment (AGE) associated with the automatic support equipment, and severely delay new support equipment for the Alternate Fighter Engine.

The following PGSE items, efforts and support will be procured with the FY 85 funding.

- Priced Aerospace Ground Equipment	\$ 33.4M
- Avionics Intermediate Test Sets	76.8M
- TEWS Intermediate Test Equipment	20.2M
- Engine AGE	26.9M
- Sustaining Engineering Support	22.6M
- TEWS Depot Support	43.9M
- Depot Avionics Support	80.0M
- Engine Test Sets	4.7M

- Conformal Fuel Tank AGE	.5M
- Government Furnished Aeronautical Equipment Repair	7.0M
- MSIP Support Equipment	41.0M
TOTAL	\$357.0M

AIR FORCE ALTERNATIVES

QUESTION: Your tactical fighter roadmap appears to assume continued funding growth for the fighter program even though strategic programs will continue to have priority and airlift programs are a strong competitor.

Preliminary CBO analysis, assuming 5 percent real growth and maintaining the current tactical air share of the Air Force budget, suggests that the Air Force can maintain either the current 36 wing force level with continued procurement of 36 F-15s per year or have 40 tactical wings without additional F-15 procurement while keeping the average force age at about 10 years. Which of these alternatives has a higher priority in the Air Force?

ANSWER: Air Force planning goal is to achieve 40 tactical fighter wings as an attainable midterm goal. The programmed procurement of F-15C/Ds and the derivative F-15E, in the quantities projected, is integral to the Air Force plan to achieve and modernize that fighter force. The F-15 is our only air superiority fighter capable of performing the full all weather, air-to-air mission. The dual role F-15E will retain this air-to-air capability and additionally will also provide the vital day/night and adverse weather interdiction capability. If funding levels dictate, we will be forced to accept a slower growth but must have the right mix of capabilities to include additional F-15C/Ds and the F-15E.

MAINTAINING THE FORCE

Question: The roadmap says that 6.5 new aircraft must be bought each year to sustain one fighter wing without increasing the fleet age, which now averages well below your 10 year goal. How many of the 198 F-15s and F-16s requested that year are needed to maintain the force in its present condition and how many are needed for increasing the force structure?

Answer: Excluding the F-111s, the average age of the fighter force in 1984 is approximately (d) years. This age increases to about (d) years before it reverses and stabilizes at just under (d) years with our programmed procurement rate as we flesh out and sustain a 40 fighter wing force. The 198 fighter procurement in FY85 of itself would neither maintain the force in its present condition nor permit needed growth. However, because the tactical force is currently below the average age of ten years, and with programmed fighter procurement in FY86 and beyond, the procurement rates in the submitted budget would achieve our 40 wing goal with a resultant average force age of just under [deleted].

ADDITIONAL PERSONNEL

QUESTION: How many additional people must be added to the Air Force to support the additional 4 tactical fighter wings?

ANSWER: The tactical force structure growth requested in the FY 85 Budget is 4 wing equivalents (72 authorized aircraft per wing

equivalent) which is not obtained until the end of FY 89. Active and Air-Reserve Forces (Air National Guard and Air Force Reserve) are included in this modernization and growth program.

The following depicts the Air Force manpower programmed to accommodate the FY 85 Budget tactical force structure program:

FY 84-89

	Wing Equivalent	Manpower Growth			
	<u>Growth</u>	<u>Military</u>	<u>Civilian</u>	<u>Drill</u>	<u>Total</u>
Active	+2.8	+5835	+153	-	+5988
Air National Guard	+1.0	+711a/	+347b/	+2131	+2842b/
Air Force Reserve	+4.3	-	+108b/	+298	+298b/
	<u>+4.1</u>	<u>+6546</u>	<u>+608b/</u>	<u>+2429</u>	<u>+9128b/</u>

a/ Full-time Active Duty Guardsmen

b/ Full-time Air National Guard and Air Force Reserve Air Reserve Technicians are also counted against wartime Drill requirements and are, therefore, subtracted from the totals in order not to double count them.

SPECIALIZED AIR-TO-GROUND AIRCRAFT

QUESTION: The fighter roadmap establishes requirements for specialized air-to-air and air-to-ground aircraft plus a multi-role aircraft, which you propose as the F-15E. Meanwhile you are seeking funds to start developing the Advanced Tactical Fighter for the air-to-air role. What are your plans for a specialized air-to-ground aircraft?

ANSWER: Specialized air-to-ground aircraft currently in service will fill our needs for the near term. The Air Force is looking at various options for the future, which include, as suggested in the roadmap, re-rolling aircraft that previously were primarily air-to-air or multi-role aircraft. For example, the F-4 will be predominately used in the air-to-ground role through the late 1980 and early 90's. In the late 90's or early 2000's, a derivative of the ATF might be appropriate to replace the F-111.

NUMBER OF AIR-TO-AIR AND AIR-TO-GROUND AIRCRAFT

QUESTION: By theater, provide the number of air-to-air and air-to-ground aircraft needed to meet operational plans. Based on these numbers what is the maximum percent of your fighter force which must be capable of a specialized air-to-air role.

ANSWER: The number of aircraft necessary to meet operational plans is dependent upon numerous items. However, critical in answering the thrust of your question is that operational plans are predicated on what is available not what is required. Thus, the percentage of air-to-air assets dedicated to any operational plan is based on what is available given that other operational plans may have been initiated. For example, many of our squadrons are tasked today to go to both Europe and the Pacific. The OJCS will determine where these units are most needed when the time

comes. This dual tasking is required because of our limited force structure available.

ADVANCED TACTICAL FIGHTER PROGRAM

QUESTION: In requesting \$94.3 million for the Advanced Tactical Fighter you have slowed the program by 2 years, delaying its IOC until 1995. Meanwhile you are requesting R&D funds to start the Dual Role Fighter and have informed Congress of plans to develop an F-16F. If you have to slow one program, which would it be--the ATF, F-16F or Dual Role Fighter?

ANSWER: The ATF, the F-16F and the Dual Role Fighter are all high priority programs. If the Air Force is forced to take a cut, these three programs would be ranked with all other AF priorities rather than evaluated against one another.

IMPROVED THRUST ENGINE FOR THE F100 AND F110

QUESTION: Of the \$94.3 million requested for the ATF, \$74.6 million is for R&D on a joint advanced fighter engine. Dr. DeLauer told us he favors an improved thrust engine for the F100 and F110. Is it wise to be pursuing all these different engine R&D programs simultaneously?

ANSWER: The Joint Advanced Fighter Engine (JAFE) is being specifically designed for the Advanced Tactical Fighter (ATF). The aircraft will have its unique mission, durability and performance requirements. These requirements dictate the use of new materials and technologies. Since development of the engine takes longer than development of the aircraft, the early emphasis as indicated by the funding is on engine development.

Improved thrust versions of the F100 and F110 are being considered for use in F-15 and F-16 aircraft. These engines will enhance the ability of these aircraft to counter the improved threat in the 1990-95 time frame, prior to deployment of the ATF. The two levels of engine development programs, the increased thrust F100/F110 and the new JAFE, are needed to meet different requirements in different time frames.

MULTI-NATIONAL ATF

QUESTION: Why shouldn't we pursue a multi-national ATF--and spread the R&D costs throughout the NATO alliance?

ANSWER: The US has discussed the possibility of a cooperative development effort with NATO. The Europeans did not indicate a desire to participate at this time. A cursory examination of USAF and other allied nation's requirements for an advanced fighter indicates some commonality. Closer examination, however, shows significant differences in several basic aircraft design drivers. The design mission radius and operating speeds that satisfy European fighter requirements are significantly less than those desired for the ATF, and the ATF's long-range unrefueled ferry requirement is not shared by our allies. Although there is a possibility for cooperative development at the subsystem level, there are some technologies that we feel are sensitive and should not be released to NATO.

INTEROPERABILITY PROBLEMS

QUESTION: Wouldn't this help solve many of our interoperability problems, especially in the area of IFF?

ANSWER: At this point in the Advanced Tactical Fighter (ATF) program, it is too early for the US to identify technologies or subsystems for multi-national cooperative development. The tactical benefit of interoperability among multi-national NATO weapon systems, however, is well understood and appreciated by the US. In the IFF area, the US is already cooperating with our allies on the development on the Mark XV IFF system as a retrofit for current generation aircraft. Once the preferred ATF concept is established, subsystem interoperability will be closely monitored.

NEW FIGHTER DESIGN FOR THE BRITISH

QUESTION: Aren't the British looking at a new fighter design now?

ANSWER: Great Britain along with Germany, Italy, France, and Spain are actively considering various alternatives for fulfilling their next generation tactical aircraft requirements. On 16 Dec 83, the Chiefs of Staff of these countries signed a common military agreement for the Outline European Staff Target of a future European fighter aircraft. The document specifies the jointly required operational characteristics for a single-seat, twin-engined, agile, short take-off and landing (STOL) fighter to be introduced in the mid 1990s.

F-16 COST GROWTH

QUESTION: Under the current multiyear contract, the unit cost of the F-16C/D has increased from \$12.3 million last year to \$18.3 million--nearly a 50 percent increase. What is causing this?

ANSWER: The following is an FY 84 to FY 85 track of the unit recurring flyaway cost of the F-16:

	(\$TY/M)
FY 84 Unit Recurring Flyaway	\$12.3
Competition Engine	+3.2
ASPJ	+1.3
Miscellaneous	+0.7
Inflation	+0.8
FY 85 Unit Recurring Flyaway	\$18.3

\$485 million (\$3.2 million per aircraft) was programmed to protect the fighter engine competition; as a result of recent engine decisions this number can be reduced by \$258 million or \$1.7 million per aircraft. FY 85 is the first year that the ASPJ is incorporated in production aircraft and will replace the use of ALE-131 pods (previously procured under a separate program element). The \$0.7 million for miscellaneous changes include AMRAAM launchers/remote interface units (RIU), reliability/maintability changes, etc.

INCREASE IN THE F-16 PROGRAM

QUESTION: You planned and presumably established your programs for a 44 tactical fighter wing force for some time. You have now scaled back to 40 wings. What then is the rationale for

the 22 percent increase (486 additional aircraft) in the F-16 program this year--even after selecting the F-15 as the dual role fighter?

ANSWER: The referenced 22 percent increase in F-16 procurement in the FY85 budget reflects the 54 aircraft added during FY84 mark, an increase of 36 aircraft per year from FY86 through FY91 plus an added procurement year (FYDP plus 3 years) totaling 486 aircraft. The Fighter Roadmap planned procurement rate of 276 aircraft per year is based on the proper mix and rate to flesh out, sustain and modernize 40 fully capable fighter wings.

NEW GE ENGINE

QUESTION: I understand you are adjusting downward the \$485 million budgeted for installation of the new GE engine. How much do you need and what will it be used for?

ANSWER: \$485 million was budgeted in the FY85 F-16 procurement line to protect the fighter engine competition. Of this amount, only \$192.8 million is required in the F-16 program (a reduction of \$292.2 million). The \$192.8 million will be used as follows:

	(TY\$/millions)
- FY 85 Aircraft	\$165.1
- Advance Procurement for FY 86 Aircraft	27.7
- Total	\$192.8

In addition to the adjustment to the F-16 weapon system line, there is also a corresponding adjustment to initial spares due to the increased durability of the alternate engines. This adjustment for initial spares is -\$122 million and -\$33 million* to the F-16 and F-15 respectively. However, due to the increased cost of the F-100-220 engine selected for the F-15, \$175 million has to be added to the F-15 weapon system line. The net result of these changes is -\$272 million.

* Subsequent to the submission of the Department of Defense FY85 Budget Revisions, the Air Force has repriced the F-15 initial spares requirement. This number reflects our latest estimate.

SELF PROTECTION JAMMER PROGRAM

QUESTION: Along with the wide range of electronic warfare aircraft such as the EF-111, the Compass Call C-130s plus other anti-radiation weapons, why do you need to start a \$1.5 billion aircraft self-protection jammer program--the so called ASPJ? Why can't this program be deferred?

ANSWER: The necessity of being able to fight in a heavily defended European conflict and keep aircraft losses at the required low levels dictates that a mix of electronic combat systems be employed.

We have only a limited number of EF-111, C-130 Compass Call and F-4G Wild Weasel aircraft. These special electronic combat aircraft can not, by themselves, protect the several hundred aircraft used in the counter air, strike and interdiction roles during the first several days of conflict. The EF-111 and Compass Call aircraft slow down and disrupt the Acquisition and Command & Control processes of the Soviet integrated air defenses - making it inefficient--thus reducing the number of aircraft engaged by the air defenses. These special EC aircraft can not and are not

intended to prevent engagement of all aircraft by the enemy defenses.

Once engaged, we rely on self protection ECM, such as the ASPJ, to severely degrade the radar controlled defenses. Self protection ECM reduces the attrition rate during the first several days of the conflict, giving our lethal systems (the F-4G) adequate time to selectively destroy a significant number of the defenses, thus systematically reducing the enemy's ability to engage our aircraft.

The ASPJ provides the self protection required for the F-16 to survive in the high threat density European environment, while allowing the aircraft to carry the full complement of external weapons and fuel necessary to perform its Counter Air and Close Air Support/Battlefield Interdiction roles. The ASPJ is designed for the F-16 and is fully integrated with other onboard avionics for the most cost effective solution to the aircraft's self protection needs.

Deferring the FY 85 start of the ASPJ production would result in new F-16 aircraft being produced without any self protection ECM, requiring more expensive retrofit at a later date.

We have a significant shortage of self protection ECM systems for the Tactical Air Forces which will last until 1990 even with the planned acquisition of ASPJ.

APG-68 RADAR

QUESTION: The cost of putting the new APG-68 radar in the F-16 is \$2.9 billion. How much of an increase is that over the current radar and what extra capability does it provide?

ANSWER: The APG-68 radar is estimated to cost \$0.58 million per unit (constant FY 83 dollars) over the current APG-66 radar. The major hardware changes include the incorporation of a programmable signal processor (PSP), a modular low power RF and a dual mode transmitter (DMT). These changes provide increased power/range, increased computer capacity/speed, improved frequency control and the flexibility to efficiently incorporate future changes. With the above features, the APG-68 will have the following modes not included in the APG-66: track while scan, velocity search, raid cluster resolution, ground moving target indicator (GMTI), ground moving target track (GMTT), and fixed target track. In addition, the doppler beam sharpening and single target track modes in the APG-68 are significantly improved compared to similar modes in the APG-66.

GROUND SUPPORT EQUIPMENT

QUESTION: You are requesting a 50 percent increase in funding up to \$574M for ground support equipment to field the same number of F-16s as last year. What does this increase provide for and what would be the impact if the 1984 level of funding were sustained?

ANSWER: Comparison of the F-16 peculiar support funding in FY84 and FY85 is misleading because of an anomaly in the FY84 F-16 budget. In preparation of the FY84 President's Budget request, the F-16 peculiar support was rephased to align funding with program obligation experience. As a result, \$103M was removed from the FY84 F-16 peculiar support request because FY83 funds would be available to meet some of the FY84 obligation requirements; this made the FY84 peculiar support budget artificially low.

Recent reestimates of FY85 peculiar support needs have reduced the FY85 requirement from \$574M to \$469M (\$105M reduction). A further reduction to the FY84 appropriation level (\$378M), would make support and training equipment late-to-need at operational units and delay delivery of depot support equipment.

F-16F START

QUESTION: Your fighter roadmap envisions procurement of the single-seat upgraded F16F starting in the late 1980s. Are you going to ask for FY85 R&D funds to start the F-16F?

ANSWER: The fighter roadmap envisions procurement of an F-16 variant (F-16F) in the FY89 time period. Funding to support the roadmap includes \$24M RDT&E funds in FY85 required to initiate development of the F-16F.

F-15E AND F-16F R&D PROGRAMS

QUESTION: Isn't there a strong possibility that if we start and commit to the F-15E and F-16F R&D Programs, the ATF will slip even further?

ANSWER: Program slips are always a possibility given our limited fiscal resources. The Air Force views the ATF and F-15E DRF as critical to the Air Force mission. The F-16 has been of particular value because of its low cost. Every effort is being made to insure the F-16 remains a low cost option and this effort will continue with the F-16F. As currently envisioned, the F-16F should not significantly impact the ATF R&D effort.

NEW F-16 MULTIYEAR CONTRACT

QUESTION: The Air Force is proposing a 1986-1989 multiyear contract for a "core program" of 720 F-16s with options for an additional 144 F-16s. Oddly, the potential savings from the 720 aircraft program is \$358 million (8.4 percent savings) and only \$227 million (4.6 percent savings) for the larger buy. Why would anyone prefer the larger multiyear contract over the smaller?

ANSWER: The "core program" which procures a total of 864 aircraft consists of 180 per year under a multiyear contract and 36 per year on annual options. This program is preferred because it buys the number of aircraft needed to meet force structure goals and achieves substantial savings compared to procurement of equal quantities all on an annual basis. The Air Force proposed program will result in a unit cost of \$19.0M. The basic MYP procures only 180 aircraft per year (720 aircraft total) at a unit cost of \$19.2M.

EXPLAIN \$131 MILLION SAVINGS

QUESTION: Explain to me how the Air Force can save \$131 million less while buying 20 percent more aircraft?

ANSWER: Savings calculations are based on procurement of equal quantities of aircraft. The \$131 million is the difference between the savings (\$358 million) associated with a 180/year (720 aircraft total) multiyear procurement (MYP) and the savings (\$227 million) associated with a core MYP for 216/year (864 aircraft total). The core MYP procures the President's Budget quantity with 180/year on MYP and an additional 36/year on annual options.

The average unit cost associated with the various procurement profiles and acquisition strategies is summarized as follows:

Procurement Rate (Per Year):	(180)	(216)	(180)	(216)	(216)
Procurement Strategy:	Annual	Annual	MYP	Core MYP	MYP
Unit Cost (TY\$/M):	19.7	19.3	19.2	19.0	18.8

At 180 aircraft/year, the unit cost difference between annual and MYP is \$0.5 million. If all 216 aircraft/year were procured on a MYP, the difference compared to an annual buy is still \$0.5 million and the savings would be approximately \$400 million compared to \$358 million for the 180/year MYP. However, when the core MYP is compared to an annual buy of 216, the difference in unit cost is only \$0.3 million because all the aircraft do not receive the benefit of multiyear.

FOREIGN MILITARY SALES OF F-16s

QUESTION: With the increasing number of foreign military sales of F-16s, does your proposed multiyear contract have a variable business base clause so that the US taxpayer can gain from the lower production unit costs that will occur? If not, why not?

ANSWER: When the contract for the proposed multiyear procurement (FY86-89) is negotiated, the entire F-16 business base including all FMS sales will be used to establish the target price of the aircraft. The rate benefits of the added production rate due to FMS sales will result in a lower price to the USAF. The incentive price revision clause in the contract will automatically pass on lower unit cost benefits to the USAF after contract signature.

PURCHASE OF LANTIRN PODS

QUESTION: You are requesting \$190 million for first four sets of LANTIRN navigation and targeting pods. Can either of these pods be bought by itself or must they be bought in pairs?

ANSWER: The recent negotiated position between the Air Force and Martin Marietta is structured to procure the navigation and targeting pods together as a set. The pods can be individually procured and operated on tactical aircraft; however, together the two pods provide a synergistic potential which is far greater than the individual contribution of each pod singly applied.

FUNDING FOR LANTIRN

QUESTION: Last year the Department projected a need for \$85 million in addition to the \$13 million already provided. Now you are requesting a total of \$95.7 million, all in 1985. What happened to the previous \$13 million and why should Congress fund this requirement twice?

ANSWER: The following summary of recent Air Force requests for the LANTIRN program is provided to clearly show that no requirement is being funded twice.

In the FY 1984 President's Budget Request, the projection for FY 85 RDT&E funding was \$96.3M and for procurement was \$201.3M. In the FY 1985 President's Budget Request, the projection for FY 85 RDT&E is \$98.3M and for procurement is \$190.3M.

The amount authorized and appropriated for FY 83 for RDT&E was \$99.0M and for procurement was \$15.7M. The amount authorized and appropriated for FY 84 was \$59.9M for RDT&E and \$4.5M for procurement. However, language in both FY 84 conference reports precluded use of the procurement funding in either FY 83 or FY 84 for LANTIRN production. These funds were reprogrammed to other programs; therefore, the only procurement funds remaining in the LANTIRN program were a total of \$6M in FY 82 used for technology modernization.

TESTING STATUS OF THE TARGETING POD

QUESTION: What is the testing status of the targeting pod?

ANSWER: After initial test flights were conducted in October to December 1983, the targeting pod was returned to contractor facilities for correction of problems identified during testing. The problems have been corrected and the pod has completed approximately five flights a week since the resumption of flight testing on 27 Mar 84. The infrared sensor (FLIR) and automatic tracker have been tested against test site fixtures and also a limited number of simulated ground targets. Flight testing of the laser designator and missile boresight correlator will follow soon after. All development and initial operational testing is projected to be completed as scheduled in December 1984.

COST CAP FOR LANTIRN

QUESTION: Is LANTIRN still at the \$3.98 billion cost cap established last year?

ANSWER: The Air Force and Martin Marietta recently completed negotiations for the LANTIRN production contract. The agreement reached would lead to a fixed price contract with ceiling price which caps the total program cost at \$3.98 billion for the pod sets as promised last year.

TERMINATION OF THE DUAL ROLE FIGHTER

QUESTION: How would termination of the dual role fighter affect LANTIRN unit costs? Does it become too expensive?

ANSWER: Termination of the dual role fighter would reduce the number of LANTIRN podsets from 720 to approximately 328. The current negotiated agreement for LANTIRN production does not contain options which would exactly match that quantity; however, total procurement costs would decrease approximately \$1 billion for a quantity buy of 328 pod sets and unit procurement cost per pod set to \$7.4 million in Then Year dollars. Even at that price, we believe the capability LANTIRN offers in total system effectiveness for the F-16 and A-10 would justify the investment.

CANCELLATION OF LANTIRN

QUESTION: Could you comment on the CBO argument that LANTIRN should be cancelled because the automatic target recognizer was not successfully developed?

ANSWER: The heart of the LANTIRN program is the synergistic capability of the navigation and targeting pods when integrated into selected tactical aircraft. The automatic target recognizer is not part of the LANTIRN program and is not a factor in the flight

testing and system evaluation which will be accomplished before the production decision scheduled for February 1985.

The recommendation by the Congressional Budget Office (CBO) that some of the savings of a LANTIRN cancellation could purchase other FLIR systems to meet the Air Force navigation need ignores both the reality of what capability is needed to fly safely at night and also the cost associated with fielding a system which has been fully developed and tested. LANTIRN is scheduled to complete flight testing in December 1984 and be ready for a production decision in February 1985. No other system selected could achieve a comparable schedule or comparable maturity of cost definition.

F-16 SIMULATOR MULTIYEAR PROCUREMENT

QUESTION: You are seeking \$56.5 million for multiyear procurement of F-16 simulators, \$12.7 million more than needed for single year procurement. The bulk of the savings appear to come from the economic ordering of the aircraft components used in the simulators. How much could you save if you bought these components as part of the F-16 production contract, like spares, and provided them to the contractor as CFE for single year contracts?

ANSWER: Ninety eight percent of the F-16 simulator multiyear savings derives from the purchase of peculiar simulator components common between simulator configurations, and not from components common to the aircraft. Less than two percent of the total savings for the simulator multiyear relate to aircraft components. The Simulator Program Office conducted a component breakout analysis of aircraft parts for the multiyear and compared the component costs through the simulator contract with prices quoted to the simulator contractor by aircraft component vendors for the F-16 multiyear program. The analysis showed there would be no savings if the Air Force procured the aircraft components and provided them as government furnished equipment to the simulator contractor.

E-3A PROGRAM

QUESTION: Congress provided \$76.2 million last year for advanced procurement of E-3A AWACS aircraft. Your budget documents do not show that money being used in the next 5 years. Why shouldn't Congress reapply it somewhere in the 1985 program?

ANSWER: \$76.2 million was appropriated in FY 84 for E-3 advance procurement. The Air Force plans to use these funds in FY 84 and FY 85 to maintain an E-3 production capability into FY 86. The number of E-3 aircraft to be procured in FY 86 and outyears will be determined during the FY 86 budget cycle.

Expenditure of the advance procurement funds over FY 84 and FY 85 is essential in order to avoid an E-3 production line break. Cost to restart E-3 production would be prohibitive for future US or FMS E-3 acquisitions.

C-5 BUYS

QUESTION: You are requesting \$2.1 billion for procurement of 10 C-5Bs under a firm fixed price contract. I understand that there are quantity options to each of the contracts. What are the minimum and maximum number of C-5s which could be bought in 1985, 1986 and 1987 without breaking the contract? What would be the impact on the quoted fixed price?

ANSWER: The firm fixed price contract for 50 C-5B aircraft (FY 83 - FY 87) does allow procurement of one or two fewer aircraft in either or both FY 85 and FY 86. These aircraft must be added to the FY 87 buy in order to remain within current contract provisions. The following chart shows the FY 85 President's Budget profile which is the maximum production and a minimum FY 85, FY 86 and FY 87 profile. Cost data is then year dollars in millions for the weapon system only.

	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>COST</u>
PB - Maximum	10	16	19	8857.1
Minimum	8	14	23	8911.2
Difference	-2	-2	+4	+54.1

FUNDING RATE FOR ENGINEERING CHANGE PROPOSALS

QUESTION: The C-5B program is frequently perceived as a low risk evolution from the C-5A. Why then is the funding rate for Engineering Change Proposals which is a measure of risk higher than the B-1B?

ANSWER: The B-1B is a single aircraft system and engineering change proposals (ECPs) are funded to make changes to only the B-1B. The C-5B program must not only fund changes to the C-5B but also changes done to the C-5A that are then included on the C-5B to maintain aircraft commonality.

FUNDING FOR TRAINING

QUESTION: Why is \$102 million needed for training on an aircraft which is already fully deployed? What is the impact if this funding were cut in half?

ANSWER: The \$102 million for training in FY 85 is required to refurbish and configure the current training devices to the C-5B configuration.

If the FY 85 funding is cut in half, the Air Force would have to restore these funds in the out years of the program in order to acquire necessary training equipment to support the total C-5 weapon system.

Such a cut would change the training device buy profile from the current 1-4-2 (FY 84, 85 and 86) to 1-2-2-2 (FY 84, 85, 86 and 87) and subsequently increase the total required training funds by approximately \$32 million. The training program shifts from a 56 month program to support the growth of the C-5 fleet to a 72 month program. Approximately 72 crews in FY 88 and FY 89 will be non-current because C-5 training systems will be saturated.

TERMINATION COSTS FOR THE C-5B CONTRACT

QUESTION: What are the termination costs for each of the next three years on the C-5B contract?

ANSWER: The following costs/requirements assumes non-exercise of the applicable FY options (i.e., if we did not exercise the FY 85 option it would cost the government \$17,840,000 in capital/investment costs and \$108,314,753 in non-recurring costs which would deliver the 5 aircraft already funded - total cost \$126,154,753).

	FY 1985	FY 1986	FY 1987
Capital/Investment*	\$17,840,000	\$23,148,000	\$21,180,000
Non-recurring**	\$108,314,753	0	0
TOTAL	\$126,154,753	\$23,148,000	\$21,180,000

* Funds required as a direct result of termination

** Start-up costs were spread over the first three years of the program (FY 83, 84 and 85) and are required to deliver the 5 aircraft funded in FY 83 and FY 84

ROLE OF THE C-17 IN YOUR FUTURE AIRLIFT PLANNING

QUESTION: The Air Force's Airlift Master Plan was issued late last year. What were its major conclusions regarding the role of the C-17 in your future airlift planning?

ANSWER: The Air Force Airlift Master Plan recommends acquisition of 180 primary mission C-17s (210 total) to meet the minimum intertheater airlift requirement, increase intratheater capability, and modernize both the active and reserve airlift force structure while minimizing life cycle costs and manpower requirements. An integral part of the airlift system described in the Airlift Master Plan, the C-17 will carry large payloads over intercontinental distances, and deliver them into three times as many runways as our current force. This ability reduces both delivery times and congestion at main operating bases by eliminating transshipping some payloads with intratheater airlift or ground transportation.

C-17 PROGRAM TRANSITION

QUESTION: FY 1985 begins the first year of full scale engineering development for the C-17 program, and you are requesting \$129 million for it. Is all of this request essential to smooth transition to the FSED portion of the program?

ANSWER: Yes. The FY 83 funding (\$59M) was received in Aug 83 followed by appropriation of FY 84 funds (\$26.8M). Because of the lateness of FY 83 funds, and the reduced magnitude of FY 84 funds, it was agreed that the combined funding from FY 83 and FY 84 would be utilized to carry the program fourteen months (Aug 83- Sep 84). Approximately \$81M was placed on contract for the fourteen month period. The ramp up to \$129.3M in FY 85 is modest and the minimum amount necessary for a meaningful transition to FSED.

CURRENT SERVICE LIFE PROJECTIONS FOR THE C-130

QUESTION: The C-17 will not only add outsize intertheater capability to the fleet, but also replace retiring C-130As and Ds. What are your current service life projections for the C-130? How do they match up with your C-17 acquisition plan?

ANSWER: First, the C-17 will complement the C-130 in the intratheater environment and replaces the capability lost from retiring C-130s in the 1990s and is not a direct replacement of the aircraft.

In developing the Airlift Master Plan, aircraft age and force modernization were prime considerations. The over 550 airlift C-130s in the Active and Air Reserve Forces (ARF) are made up of aircraft that are today over 25 years old and others which have been in service for only a year or two. By the end of the century, over 200 early model C-130s will be 40 plus years old.

The economic service life projection is that approximately 180 early model ARF C-130s should be retired during the 1990s. Nearly 350 C-130s will continue in service well into the 21st century. This corresponds with the acquisition of C-17s during the same time period. The projected delivery schedule of the C-17 is shown below.

Year	90	91	92	93	94 - 99	2000	TOTAL
Quantity	2	5	11	24	25/year	18	210

PROVISION FOR C-17 DEFENSIVE EQUIPMENT

QUESTION: Will the C-17 be more survivable in forward battle areas than the C-130? Does it have provisions for defensive equipment?

ANSWER: The C-17 will be at least as, if not more, survivable than the C-130 in the forward battle areas. The C-17 is the first airlift aircraft with survivability as a design criterion. A detailed vulnerability analysis (to be completed during full scale development) will determine the location and redundancy needs of critical components and structures so they can be adequately protected. Additionally, the maneuverability characteristics of the C-17 will allow it to quickly penetrate a threat environment to either airland, airdrop or LAPES. By minimizing the exposure time at low altitudes, the C-17 will be less susceptible to small arms fire and reduce the possibility of ground detection and engagement by hostile air defense systems.

Space, weight and power provisions for radar warning, infrared and flare systems are incorporated in the design. Hard points on the wing for electronic countermeasures equipment are also included. The fuel tanks will have a nitrogen inerting system and all fuel lines that are one inch or greater in diameter must be self sealing. There is also space provisions for armor plating in the cockpit and loadmaster station areas. These design features are what gives the C-17 its excellent survivability.

REDUCTION IN AIR FIELD SATURATION

QUESTION: General Vessey and all of the Joint Chiefs of Staff have signed letters supporting the C-17. The C-17 can deliver directly to the theater, while C-130s have to be loaded at main operating bases.

Did the Joint Chiefs feel that the C-17 will help reduce air field saturation at main operating bases, and ease the logistics burden on our airlift system?

ANSWER: The Joint Chiefs of Staff have supported the need for an airlift aircraft capable of performing the following missions:

- a. Intratheater delivery of all cargo, including outsize equipment to austere airfields.
- b. Intertheater direct delivery to austere airfields.
- c. Airdrop/Low-Altitude Parachute Extraction System of outsize equipment.
- d. Air-lifting a wide range of key, modernized equipment.
- e. Intertheater performance, with the capability to transition into the intratheater role; the onward movement of units, equipment, and resupply.

In addition the JCS recognized the criticality of closing significant forces (battalion and brigade size) quickly into small, austere airfields with limited ramp space and taxiways. The C-17 is designed to meet these requirements while reducing saturation of main operating bases.

COMPARISON OF C-17 AND C-130 OPERATIONS AND SUPPORT COSTS

QUESTION: How does the C-17 and C-130 compare in terms of operations and support costs? Wasn't this addressed in the Master Plan?

ANSWER: While the Airlift Master Plan listed an annual FY 82 dollar operations and support (O&S) cost for a C-17 (\$7.4 million) and a C-130 (\$2.2 to \$2.3 million), these are not directly comparable because of the significant differences in capability (five times) and how they contribute to the overall Congressionally Mandated Mobility Study goals. There is not a one for one relationship between these two aircraft and their contribution to airlift needs. A more accurate comparison would be a 30 year O&S cost for 180 C-17s (\$5.5 billion) compared to a force structure of 156 C-5Bs and 180 C-130s (\$23.3 billion) to do the same job. There is a savings of \$17.8 billion by using C-17s (FY 82 dollars).

C-17 COST

QUESTION: Even if the C-17 is the optimum aircraft for the future, we have to be concerned about the overall cost of the program.

How much R&D is left on the program? Isn't the total R&D price tag close to \$4 billion?

ANSWER: The total projected R&D cost for the C-17 program (C-17 SAR, 31 Dec 83) is \$3947.0 million in then year dollars (\$2704.1 base year 81). Congress has appropriated \$120 million through FY 1984, leaving \$3827.0 million (FY 85 - FY 92) left on the program.

TOTAL C-17 COST

QUESTION: A C-17 funding profile provided the subcommittee last year shows that procurement of 182 C-17s would cost over \$32 billion. Is this still an accurate estimate?

ANSWER: The FY 85 President's Budget and 31 Dec 83 SAR reflect a total buy of 210 C-17s. Then year procurement cost for 210 aircraft is \$33.548 billion. The Airlift Master Plan signed in September 1983 and submitted to Congress in December 1983 established 180 primary aircraft authorized (PAA) as the quantity necessary to meet overall airlift goals. The current program also includes an additional 30 backup/training aircraft, for a total of 210.

The procurement quantity of 182 resulted from the C-X source selection and did not represent actual airlift requirements. It was the only quantity for which a total cost was available last year and was used until the Master Plan established an approved force structure. The audited C-17 base year 1980 dollar Most Probable Cost for 182 C-17s was \$12.889 billion. We estimated that purchase of 182 aircraft (FY 88 - FY 97) would cost \$30.5 billion in then year dollars.

ECONOMICAL RATE OF PRODUCTION

QUESTION: The production schedule shows that you plan on building no more than 25 a year, or 2 per month.

Do you consider this an economical rate of production?

ANSWER: The currently planned two aircraft per month rate is due to funding constraints in airlift total obligation authority line. Two aircraft per month is the minimum economic rate of production.

LOWERING THE PROCUREMENT COST OF THE PROGRAM

QUESTION: Is McDonnell Douglas capable of ramping up to a higher rate of production? Would that help in lowering the procurement cost of the program?

ANSWER: The answer to both questions is yes. Douglas is capable of both ramping up to a higher monthly production rate and accelerating the build up rate to reach that point. Accelerated build up and increased production rates will lower the then year procurement cost for like quantities of aircraft.

ALTERNATIVES IF C-17 IS CANCELLED

QUESTION: What alternatives would you pursue if the C-17 is cancelled?

ANSWER: The C-17 is essential in meeting requirements for inter and intratheater airlift, force modernization, cost and manpower ceilings, and stabilized airlift force structure. The C-17 is designed to fit into the existing airlift fleet and improve total system effectiveness. Without the C-17 all the problems which the Air Force Airlift Master Plan is designed to solve would become more acute.

Without the C-17 a replacement for the C-141 and C-130 would have to be considered. The C-141 is the backbone of our fleet and will begin retirement in the 1990s. Without the C-17, some other replacement for the C-141 would have to be developed. The C-130 cannot meet outsize requirements within the theater. Additional C-130s would not provide all the required capabilities. Without the C-17 a new intratheater airplane would also be required much sooner.

The Airlift Master Plan evaluated several alternatives and found them more expensive and less capable for the military airlift mission. A two airplane solution would disregard operational experience and analytical work supporting the C-17 aircraft. The only real alternative to the C-17 would be another aircraft meeting the same performance standards.

ACCEPTABLE ALTERNATIVES

QUESTION: Do you consider these acceptable alternatives?

ANSWER: No. Existing aircraft are not suitable alternatives. The C-17 emerged from an intense competition as the best solution to our airlift needs. There have been no breakthroughs in technology which would indicate any appreciably different or better design could be produced. The development of requirements, competition to build the aircraft, and the design work completed all point to the criticality of the C-17 to meeting the airlift requirements for this nation.

ACCELERATING C-17 PRODUCTION

QUESTION: Have you examined capping C-5B production at a lower number, and accelerating the C-17 by one year?

ANSWER: We have not examined capping C-5B production below 50 aircraft. Procurement of two fewer aircraft in FY 85 is possible but would have to be made up in the FY 87 buy. This is a provision in the firm fixed price contract and does not require negotiation with Lockheed.

We have also examined acceleration of the C-17 program but were unable to increase out-year funding and remain within budgetary constraints. Accelerating the C-17 initial operational capability by one year (from FY 92 to FY 91) is estimated to require approximately \$3.3 billion in the period FY 85 - FY 89.

RANGE CONTROL AIRCRAFT

QUESTION: You are requesting \$16.4 million for 2 C-12 range control aircraft. Last year the Air Force leased 120 operations support aircraft, to include 40 C-12s. That requirement was justified on the basis of a 44 tactical fighter wing force, which is not now in the program. Why can't two of those leased C-12s be used for this mission and ultimately purchased when the purchase option comes up.

ANSWER: Prior to requesting funds for two Range Control Aircraft, the Air Force did investigate leasing. Life cycle cost analysis indicates that purchase rather than leasing is the most cost effective solution for the range control requirement. Over half of range control aircraft program costs would be associated with the aircraft modification. Leasing is not viable because the modified airframes would have little commercial value for follow on lessors. Potential lessors would include substantial demodification charges payable in the first year of the lease.

Additionally, the Air Force intends to compete the range control aircraft. Specifying the type of aircraft would limit competition unnecessarily. The winning proposal will provide the aircraft, telemetry pod and radar and integrate them into a total system. The type of aircraft purchased will be decided during source selection based upon contractors' proposals and source selection criteria. The selected aircraft will be in the general class of a medium, twin engine, turboprop aircraft similar to the C-12A.

PROCUREMENT FUNDING FOR 3 HH-60Ds

QUESTION: Explain why 39 percent (\$22.5 million out of \$57.1 million) advance procurement funding is needed for 3 HH-60Ds. Site examples of other programs with similarly high advance procurement requirements.

ANSWER: The advance procurement request of \$22.5 million was based on estimates made prior to award of the Army UH-60A airframe and engine multi-year contracts. More recent information indicates that substantial reductions in advance buy requirements will result from the signing of these contracts. Additionally, an adjustment in the production schedule will delay deliveries of the first three aircraft by six months - from early to mid FY 1988. This action has further reduced advance buy requirements. The minimum advance funding required for the purchase of 3 HH-60Ds has been submitted to the Office Secretary of Defense. The balance of the original estimate has been offered as part of the proposed FY 1985 budget reductions. When the revisions to the FY 1985 budget have been finalized you will be informed of our revised FY 1985 requirements for advance funding.

NEED FOR ADVANCE PROCUREMENT IN FY 1985

QUESTION: You don't even start avionics flight testing until 1985. Total system flight testing won't be completed until 1987. Why do you need advance procurement funding in FY 1985?

ANSWER: Advance procurement funding is required in FY 1985 in order to field this system by FY 1988. A limited amount of concurrency in the development and production programs is necessary to meet this near-term requirement. However, risk is low as the airframe and almost all avionics are modified off-the-shelf equipment vice new development items. Advance procurement funding is needed for airframe and engine components with up to 31 month lead times as well as for production drawings.

AVAILABILITY OF THE RADAR

QUESTION: When do you start flying the radar? Is it available at the start of the flight test program?

ANSWER: Under the current schedule flight testing of the radar begins in March 1986, six months after the start of the avionics flight test program. The delay is a result of reduced FY 1984 funding.

JVX

QUESTION: The Air Force wants to buy 80 JVX as special operations aircraft. What is the requirement for an aircraft with the JVX's capabilities?

ANSWER: Special operations air support missions normally require undetected operations in hostile or denied areas and may also require precise fire support. Most missions involve deep penetration (100NM or more) of hostile airspace to reach target areas. Distances increase substantially when missions originate from planned wartime staging or beddown bases (400-

1000NM combat radius is typical). In order to accomplish these types of missions, aircraft must be capable of operating at high speed and low altitude within hostile airspace under conditions of minimum visibility (darkness or adverse weather) while navigating precisely within narrow time parameters to arrive at specifically defined drop or landing zones, infiltration/exfiltration points or target areas.

Today, existing technologies have driven us to employ a mix of fixed wing and vertical lift aircraft to accomplish these missions. Our most critical shortfall exists in long-range infiltration/exfiltration platforms. The capabilities inherent in the baseline JVX (fixed wing speed coupled with a vertical lift capability) identify it, today, as a strong candidate platform around which we can resolve shortfalls while simultaneously designing tomorrow's special operations air support force. As part of the joint Service JVX development effort, our special operations mission requirements (night/adverse weather penetration, 700NM combat radius and inflight refueling) are being incorporated into the designed operational capabilities of the JVX.

T-46A Next Generation Trainer

QUESTION: At our recent Air Force budget overview hearing, Secretary Orr testified that the T-46A was one of the 1985 new starts which could be deferred at least one year. What would be the impact of deferring that program?

ANSWER: Secretary Orr's statement of February 28, 1984 regarding the T-46 appears to have been misconstrued to indicate that the T-46 is a candidate for deferral. Assistant Secretary Cooper provided clarification in testimony to the House Armed Services Subcommittee on Research and Development on February 29. He stated that the T-46 was not offered up on a hit list, but that Secretary Orr was merely responding to a request for an identification of production new starts. He indicated that the Air Force is "very strongly supportive" of the T-46 to replace the aging T-37 trainer aircraft.

To respond to your question regarding the impact of deferring the program, a brief review of the acquisition background is necessary. The T-46 acquisition program was conducted as a competitive source selection in the 1981-82 time frame. The development contract which was awarded in July 1982 to Fairchild Republic Company and to Garrett Turbine Engine Company contained fixed priced options for the first two production buys. These options established a range of procurement quantities as depicted below:

	Lot I	Lot II
	(FY 85)	(FY 86)
Minimum Qty	10	22
Maximum Qty	21	44

The Air Force procurement request for FY 85 is already at the minimum procurement level which would permit exercising the competitively priced Lot I production option. A reduction in authorization/appropriation below the requested level will make us unable to exercise the Lot I option and would accordingly nullify the Lot II option. This would subject the Air Force to the unsavory prospect of negotiating a new contract with Fairchild in a sole

source environment with the associated administrative leadtime and cost increase implications this has. In addition, the operational impact extends beyond the obvious delay of the Initial Operational Capability (IOC), and would require an undesirable extension of the planned phase out of the cost inefficient and operationally deficient T-37.

In summary, the Air Force has reduced the T-46 buy to the lowest practical level in recognition of fiscal limitations. Any further deferral of the T-46 program would nullify the procurement savings attained by the competitive source selection, contrary to good management practice and recent Congressional emphasis on competition. Therefore, we emphatically support uninterrupted continuation of this procurement program which was initiated with the \$5.8 million FY 84 advance procurement appropriation.

TR-1 RECONNAISSANCE AIRCRAFT

QUESTION: I note that the 1985 request for TR-1 and U-2 reconnaissance aircraft is one less than the 5 projected last year and that there is no advance procurement funding requested for 1986. Does the Air Force plan to let that line go cold?

ANSWER: [Deleted] the life of the production line.

IMPACT OF DEFERRING TWO TR-1s

Question: What would be the impact of deferring the purchase of 2 of these 1985 aircraft?

Answer: The impact would be two-fold: it would increase the FY 85 unit price of the remaining aircraft by \$4.7M and it would increase the unit price of the two deferred aircraft by \$1.8M, comparing FY 86 to FY 85. Our analysis of TR-1/U-2R production shows that the minimum economic production rate is 4 aircraft per year, and the minimum sustaining rate is 2 aircraft per year. The above changes in unit price reflect this analysis. The price of the FY 86 aircraft in the President's Budget represents the cost of the final aircraft, which in this case follows and benefits from an economic production year. Reducing the FY 85 buy to 2 aircraft and following in FY 86 with 3 aircraft represents a 2 year period of uneconomic production rates, as reflected by the unit prices.

	85		86	
	PRES	BUDG PROPOSED	PRES	BUDG PROPOSED
QUANTITY	4	2	1	3
TOTAL AIR VEHICLE	\$84.6M	\$51.7M	\$23.7M	\$69.0M
UNIT PRICE	(\$21.2M)	(\$25.9M)	(\$23.7M)	(\$23.0M)

KC-10 AIRCRAFT

QUESTION: Included in your request for \$647 million for 8 KC-10s is \$26.3 million for training. No training funds were requested last year and none are projected for next year. Why are they needed in 1985?

ANSWER: \$26.3 million in FY 85 was budgeted for an aircrew training system at the 3rd Main Operating Base (MOB) of KC-10 aircraft. Lead time away contractual requirements necessitate resources prior to the year of operational readiness/training. The 3rd MOB

is scheduled for activation in FY 86. This is the last MOB required to support the planned fleet of sixty KC-10 aircraft.

This pattern is consistent with the obligation of funds and base activations of MOB #1 and #2, in FY 81 and 83 respectively. Training system capacity at both MOB #1 and MOB #2 will become saturated in Jan 86. If MOB #3 training system is denied funding and thus activation, MOB #1 and #2 will not be able to accommodate aircrew training requirements in consonance with firm multiyear aircraft deliveries.

PRODUCTION RATES

QUESTION: Provide for the record for all aircraft the minimum sustaining, minimum economic and maximum production rates.

ANSWER: In responding to this question, the following assumptions were made:

a. No response is required for aircraft systems with no planned production in FY 1985. This includes the HH-60D/E and dual role fighter programs.

b. The C-20A program is not conducive to any production rate analysis since this is an off-the-shelf procurement.

c. The "minimum sustaining (MS) production rate" is the lowest rate which can be achieved in FY 1985, only, without breaching existing contractual arrangements and/or resulting in diseconomies (other than inflation) to restore production in a later year. Unlike minimum economic and maximum production rates, the MS rate does not include consideration of programmed facilitization and rate tooling augmentations which are to increase capacity in the outyears.

d. The "minimum economic (ME) production rate" is one which makes effective and efficient use of planned manufacturing plant and facilities. The planned economical rate employs programmed increases in plant capacity that are cost beneficial, i.e., incremental facilitization costs result in substantial return on investment. This rate is based on a one-shift operation and is subject to contractual limitations.

e. The "maximum production (MP) rate" is the highest production rate which can be achieved with planned manufacturing plant and facilities, normally on a two-shift operation and subject to contractual limitations.

The following are the FY 1985 production rate, the minimum sustaining rate for FY 1985, only, the planned minimum economic production rate, the planned maximum production rate, and the year the ME rate is achieved for all aircraft in the FY 1985 President's Budget:

	FY 1985				YEAR ME RATE
SYSTEM	RATE	MS RATE	ME RATE	MP RATE	ACHIEVED
B-1B	34/yr.	34/yr.	48/yr.	48/yr.	FY 1986
F-15C/D	4/mo.	4/mo.	8/mo.	12/mo.	FY 1988
F-16C/D	150/yr.	10/mo.	10/mo.	20/mo.	FY 1984
KC-10A	8/yr.	8/yr.	12/yr.	24/yr.	FY 1986
C-5B*	10/yr.	8/yr.	N/A	N/A	N/A
MC-130H	2/yr.	2/yr.	4/yr.	6/yr.	FY 1986
T-46A**	10/yr.	10/yr.	12/mo.	16/mo.	FY 1988
TR-1/U-2	4/yr.	2/yr.	4/yr.	12/yr.	FY 1981

*Established procurement quantities for the C-5B program are set at 10 aircraft in FY 1985, 16 aircraft in FY 1986, and 19 aircraft in FY 1987. Under terms of the Firm Fixed Price contract,

one or two aircraft can be deferred from each (or both) of the FY 1985 and FY 1986 buys to FY 1987.

**The ME rate for the T-46A program is based on a two-shift operation and the MP rate is based on three shifts.

ADVANCE PROCUREMENT FUNDING RATE

QUESTION: For all aircraft requiring advance procurement, provide for the record a display for the years 1982-1986 showing the gross P-1 cost, the advance procurement credit for that year and the percent of that year's procurement costs advanced funded. If there is a trend of increasing percentages, justify that trend.

ANSWER: The requested information is attached and, with adjustment, indicates a trend of increasing percentage of advance procurement. The principal cause of this apparent increase is the influence of Multiyear Procurement (MYP) contracts as the Economic Order Quantity (EOQ) funded in the early years of an MYP is credited in the latter years. The 'Adjusted Percentage' Line reflects the same analysis without MYP contracts. This is accomplished by substituting the MYP programs with annual buys from the Gross Weapon System cost, and deleting the EOQ from the advance buy credit line.

The adjusted data shows a slight increase from FY82 to FY86, with some fluctuation. The slight increase is not necessarily a trend, but reflects the following factors:

- 1) Overall decreases in material leadtimes, offset to varying extents by increased use of large forgings/castings with computer directed machining. The forgings/castings save weight and assembly costs over 'bits and pieces', but increase the volume of long lead orders.
- 2) Larger aircraft require a greater percentage of advance procurement than small aircraft due to the increased applications and sizes of castings and forgings.
- 3) The addition of new systems in the latter years, each with peculiar advance requirements and mixes of Government Furnished and Contractor Furnished equipment.

The yearly fluctuations and the individual aircraft percent changes also reflect one time long lead requirements for system enhancements such as Multistaged Improvement Programs (MSIP).

Overall, the adjusted advance procurement percentages do not represent a statistically significant trend given all the variables that come into play.

ADVANCE BUY ANALYSIS

		82	83	84	85	86	Total (Average)
B-1 (MYP)	Gross W/S	(1355.0)	3465.1	4161.8	7001.6	7596.5	22225.0
	PY Credit	-	-257.6	-436.9	-1443.4	-2170.9	4308.8
	% of Gross	-	7.4	10.5	20.6	28.6	(19.4)
F-15	Gross W/S	1100.5	1332.2	1427.7	1975.3	2407.5	8243.2
	PY Credit	-125.1	-109.2	-158.7	-131.9	-209.5	-734.4
	% of Gross	11.4	8.2	11.1	6.7	8.7	(8.9)
F-16 (MYP)	Gross W/S	1500.3	2054.6	2294.8	3422.9	4111.6	13384.2
	PY Credit	-166.8	-372.3	-317.6	-462.1	-473.5	-1792.3
	% of Gross	11.1	18.1	13.8	13.5	11.5	(13.4)
KC-10* (MYP)	Gross W/S	(208.2)	(450.3)	526.0	575.0	823.0	1924.0
	PY Credit	-	-	-209.0	-332.0	-544.0	-1085.0
	% of Gross	-	-	39.7	57.7	66.1	(56.4)
C-58	Gross W/S		(707.9)	1133.1	2005.6	2397.2	5535.9
	PY Credit			-69.8	-233.4	-291.8	-595.0
	% of Gross		-	6.2	11.6	12.2	(10.7)
MC-130H	Gross W/S		57.8	65.1	88.2	140.9	352.0
	PY Credit		-27.0	-4.7	-5.8	-10.3	-47.8
	% of Gross		47.6	7.2	6.6	7.3	(13.6)
T-46	Gross W/S				110.2	181.0	291.2
	PY Credit				-5.8	-22.3	-28.1
	% of Gross				5.3	12.3	(9.6)
HH-60	Gross W/S					173.3	173.3
	PY Credit					-22.5	-22.5
	% of Gross					13.0	(13.0)
SUM	PY Credits	291.9	766.1	1196.7	2614.4	3744.8	8613.9
SUM	Gross W/S	2600.8	6909.7	9608.5	15178.8	17831.0	52128.8
%	Adv Funded/Gross	11.2	11.1	12.5	17.2	21.0	(16.5)
Adjusted Percentage (for MYP)		11.0	9.8	12.8	12.2	13.4	(12.3)

*MYP EOQ covers other substantial items beyond flyaway-unadjusted.

ADJUSTING THE ADVANCE PROCUREMENT FUNDING RATES

QUESTION: What would be the impact of adjusting the advance procurement funding rates to the historical average of the last 5 years?

ANSWER: Advance procurement funding is used for two distinct purposes: (1) leadtime-away purchases to support specific end item delivery schedules or on-going production lines, and (2) economic order quantity (EOQ) purchases of material, components, and effort to support multiyear procurement commitments. Any "average" advance procurement rate would be insensitive to specific programmatic requirements that have been individually tailored to program needs.

For example, the attached summary of aircraft procurement advance buy funding reveals that use of a 5 year "average" advance procurement funding rate would force a government breach of contract in FY85 on two approved multiyear procurement programs, B-1 and KC-10, with an attendant loss of savings in excess of \$1.5 billion. On the other hand, this same "average" advance procurement funding rate for the F-15 and MC-130H would be far in excess of needs, diverting valuable resources from areas where they are critically needed. Furthermore, imposition of any average advance procurement funding rate would require at least two years' prior notice to provide procuring agencies sufficient time to restructure production requirements and contractual commitments.

In view of the above, the Air Force does not favor the use of any "average" advance procurement funding rate.

ADVANCE BUY SUMMARY

		<u>82</u>	<u>83</u>	<u>84</u>	<u>85</u>	<u>86</u>	<u>Total (Average)</u>
B-1*	Gross W/S	(1355.0)	3465.1	4161.8	7001.6	7596.5	22225.0
(MYP)	PY Credit	-	-257.6	-435.9	-1443.4	-2170.9	4308.8
	% of Gross	-	7.4	10.5	20.6	28.6	(19.4)
F-15	Gross W/S	1100.5	1332.2	1427.7	1975.3	2407.5	8243.2
	PY Credit	-125.1	-109.2	-158.7	-131.9	-209.5	-734.4
	% of Gross	11.4	8.2	11.1	6.7	8.7	(8.9)
F-16*	Gross W/S	1500.3	2054.6	2294.8	3422.9	4111.6	13384.2
(MYP)	PY Credit	-166.8	-372.3	-317.6	-462.1	-473.5	-1792.3
	% of Gross	11.1	18.1	13.8	13.5	11.5	(13.4)
KC-10*	Gross W/S	(208.2)	(450.3)	526.0	575.0	823.0	1924.0
(MYP)	PY Credit	-	-	-209.0	-332.0	-544.0	-1085.0
	% of Gross	-	-	39.7	57.7	66.1	(56.4)
C-5B	Gross W/S		(707.9)	1133.1	2005.6	2397.2	5535.9
	PY Credit			-69.8	-233.4	-291.8	-595.0
	% of Gross		-	6.2	11.6	12.2	(10.7)
MC-130H	Gross W/S		57.8	65.1	88.2	140.9	352.0
	PY Credit		-27.0	-4.7	-5.8	-10.3	-47.8
	% of Gross		47.6	7.2	6.6	7.3	(13.6)
T-46	Gross W/S				110.2	181.0	291.2
	PY Credit				-5.8	-22.3	-28.1
	% of Gross				5.3	12.3	(9.6)
HH-60	Gross W/S					173.3	173.3
	PY Credit					-22.5	-22.5
	% of Gross					13.0	(13.0)
SUM	PY Credits	291.9	766.1	1196.7	2614.4	3744.8	8613.9
SUM	Gross W/S	2600.8	6909.7	9608.5	15178.8	17831.0	52128.8
%	Adv Buy/Gross W/S	11.2	11.1	12.5	17.2	21.0	(16.5)
Adjusted Percentage (less MYP)		11.0	9.8	12.8	12.2	13.4	(12.3)

*MYP EOQ covers other items beyond flyaway-unadjusted.

HEI CARTRIDGES

QUESTION: According to the GAO, the FY 1985 request for individual use HEI will result in an asset position that exceeds the inventory objective. What affect would deletion of the FY 1985 program have on costs under the multi-year contract?

ANSWER: Deletion of the FY 1985 program of the HEI round would result in the cancellation of the multi-year contract. Under cancellation clause in the contract, it would reduce the number of deliverable rounds from the FY 1984 program and, in addition, incur a significant cost increase to the combat mix rounds.

COMBAT MIX

QUESTION: Should more combat mix be funded in FY 1985 and could it be included on the multi-year contracts instead of individual use HEI cartridges? How would this affect costs on the multi-year contract?

ANSWER: The contractors and the contracting officer recommend that the multi-year contracts be left as they are. The Air Force will use HEI rounds in FY 1986 and outyear as Government Furnished Material for 30mm combat mix procurements. Specific contractor responses to the questions were:

Aerojet response:

This action would create an involved and undesirable program interruption. It completely disrupts overall manufacturing schedules and affects manpower planning, utilization of resources, business plans and forecasts.

This substantial reduction in HEI solo pack (2,439,225 rounds in 84 and 85) would significantly increase the unit cost for the balance of the HEI's required for the five to one combat mix.

The change would further interrupt the subcontractor base and would probably cause increased unit prices on other components due to changes in quantities and schedule.

The stability of GAU-8/A requirements along with the competition has created a very successful program in which the contractors have been encouraged to make financial investments in terms of capital and advance procurement of components. This investment means substantial savings to the government while it places risk on the contractor. To now reduce the HEI requirements by the large amount of HEI solo pack, will leave the contractor "holding the bag" on several million dollars worth of HEI projectiles and fuzes. Judging from future forecasts of 30mm HEI requirements, it could well be several years before these projectiles and fuzes could be utilized in deliverable hardware. Your decision could therefore present inventory problems, cash flow considerations, further handling costs for preparation for long term storage and could well affect management thinking and financial commitment to this heretofore stable program.

We sincerely recommend that the change not be attempted on the current multi-year buy.

Honeywell response:

They had taken the HEI quantities for FY 1984 and 85 and divided the dollars allocated from these rounds by the unit price for API/HEI mix rounds. For FY 1984 this resulted in a total of 477,691 rounds. FY 1985 the quantity would be 1,034,237 API/HEI mix rounds. This represents a net reduction in total rounds of 124,909 for FY 1984 and 270,435 rounds for FY 1985.

Increased burden rates.

Reduction in total rounds to be manufactured.

Material (residual inventory) cost increase over and above current contract. Need to procure more API.

Cancellation cost to subcontractor.

Subcontractors cost increase over and above what has already been contracted for on the multi-year.

Labor - projectile manufacturing. The API round is more labor intensive. There would be more labor hours locally, but less at LAP facilities. As a result the burden rate would increase at the LAP operation.

As a result of the above items, the contractor estimated it would be necessary to further reduce the number of deliverable rounds by approximately 400,000. It is estimated this type of action would result in an overall cost to the government of six to eight million dollars.

HEI CARTRIDGE INVENTORY

QUESTION: The FY 1984 program on multi-year contracts for individual use HEI cartridges is 1,057,425 rounds. Production of this quantity will result in about 600,000 rounds over the inventory objective. Is it possible to decrease this program.

ANSWER: No, due to cost impacts previously stated.

QUESTION: Why do quantities under multi-year contracts for individual HEI cartridges exceed the inventory objective?

ANSWER: At the time the multi-year contract was signed, it reflected the buys required to meet an equal percentage of the requirements for 30mm HEI and combat mix. Subsequently, the inventory objectives were revised based on revised operational planning and intelligence information. As a result, the requirements for HEI were reduced and those for combat mix increased.

30MM FUNDING PROGRAM

QUESTION: About \$32.6 million was withdrawn from the FY 1983 30mm program. What use was made of these funds? Why wasn't the funding left in the FY 1983 program and the FY 1985 request reduced by \$32.6 million?

ANSWER: Of the \$32.6 million, \$24.0 million were used as offsets for more immediate high priority requirements. They were:

- \$22.0 million for Secure Communications Equipment (STU-II) directed by the White House (Reprogramming action FY 83-6N).
- \$2.0 million for Operations & Maintenance (Reprogramming action FY 83-67-PA).

In addition to these prior approval Congressional reprogrammings, \$8.6 million was reapplied within the munitions account to cover price increases and procurement of additional quantities. The reapplication of the \$8.6 million was in support of Air Force policy and priorities and is in keeping with the House Appropriations Committee position that ammunition funds should not be reprogrammed as restated in their May 5, 1983 letter to the SECDEF.

40MM HEI, GUNSHIP

QUESTION: Since the budget request does not include the cost of a redesigned fuze, does the Air Force plan to use the existing Mk 27 Mod 1 fuze for the FY 1985 program? If yes, will sufficient acceptable fuzes be available?

ANSWER: Yes. Sufficient fuzes are now available for the FY 1985 program.

REDESIGN PROGRAM FOR THE MK-27 FUZE

QUESTION: What is the status of the redesign program for the Mk 27 fuze?

ANSWER: A proposal for funding an engineering redesign of the fuze has been submitted and is being reviewed. If the proposal is approved and funded, we estimate that the redesigned fuze will be available in FY 1987.

REDESIGNED FUZE

QUESTION: Does the Air Force anticipate that the redesigned fuze will be available for the FY 1985 program?

ANSWER: No. Estimated availability of new fuze is FY 1987.

RR-170 CHAFF CARTRIDGE

QUESTION: What is the result of the Air Force investigation into the production of deficient cartridges?

ANSWER: Investigation revealed that deficiencies do exist in lots produced in late 1981, 1982, and early 1983. Operational impact of these discrepancies was minimal due to the fact that operational tactics were evaluated using cartridges from these lots and they did meet minimum operational needs. Deficiencies include chaff cartridges with insufficient amounts of chaff, incorrect chaff bundle dipole lengths and incorrect numbers/ diameters of dipoles. Contractor improved his equipment and policies. Also inspection/ acceptance procedures have been improved, and all chaff received since mid-1983 meets Air Force specifications. Deficient lots have been identified and placed in condition "B", priority issue, to be consumed in training.

PRODUCTION OF RR-170 CARTRIDGES

QUESTION: Has the Air Force accepted all the RR-170 cartridges produced?

ANSWER: Yes, the Air Force has accepted all chaff produced. Prior to the investigation, the Air Force did not review lot acceptance results. Contractor conducted lot acceptance tests and Defense Contract Administration Service (DCAS) personnel reviewed test reports. The bulk of the affected chaff has been accepted and was in the inventory before the Air Force became aware of the deficiencies. Since the investigation, the Navy, the procuring agency, DCAS, and the Air Force, are all more deeply involved in the acceptance process. Additional acceptance practices have been initiated by DCAS and Air Force to assure a quality product in the future.

DELIVERIES OF THE RR-170 CHAFF CARTRIDGES

QUESTION: Have the FY 1983 and FY 1984 programs been awarded? Will these programs be completed by March 1986, the scheduled beginning of deliveries of the FY 1985 program?

ANSWER: The FY 1983 program is on contract, and deliveries are on schedule. The FY 1984 program has not been awarded, but we anticipate no problems in completing FY 1984 deliveries in time to meet the FY 1985 schedule.

CONTINUING PROCUREMENT OF THE DURANDAL

QUESTION: What is the Air Force's rationale for continuing procurement of the Durandal system when cost effectiveness and the improvement it provides in meeting airfield closure objectives appears limited?

ANSWER: Durandal is available now and provides the Air Force with an excellent cratering capability. No other weapon available today offers comparable effectiveness. The Air Force is procuring Durandal to provide a near-term capability to satisfy an urgent operational requirement.

ALTERNATIVES TO THE DURANDAL

QUESTION: Has the Air Force evaluated any alternatives to the Durandal? If yes, what were the results?

ANSWER: The Air Force evaluated every weapon available for immediate procurement, foreign and domestic. The hands down winner was Durandal. The weapons evaluated included the French BAP-100 and the Canadian CVR-7, as well as General Purpose Bombs.

ANALYSIS OF ALTERNATIVES

QUESTION: Did the analysis of alternatives determine the potential for accelerating development/procurement of other systems to permit fielding them sooner than now planned?

ANSWER: Yes. All the alternatives are in the development and test stage. The earliest an alternative would be available is FY 88 for the integration of the Boosted Kinetic Energy Penetrator (BKEP) in the Tactical Munitions Dispenser (TMD).

BOOSTED KINETIC ENERGY PENETRATOR (BKEP) SUBMUNITION

QUESTION: The Boosted Kinetic Energy Penetrator (BKEP) submunition appears to be a leading candidate to replace Durandal. The Air Force is considering putting this submunition in (1) tactical munitions dispensers, (2) the GBU-15, (3) the joint tactical missile system, and (4) the NATO air-launched cruise missile. When will the Air Force select the preferred carrier for BKEP and when could it be fielded?

ANSWER: The Boosted Kinetic Energy Penetrator (BKEP) will be integrated in the Tactical Munitions Dispenser, the AGM-130 (powered GBU-15), and the Joint Tactical Missile System (JTACMS). It would also be a candidate submunition for any future NATO weapon. The Air Force views the long-term cost effective solution to be a mix of direct attack, terminal standoff, and long-range standoff weapons. This mix will allow us to use less expensive direct attack munitions

in low threat scenarios, and shift to more expensive terminal stand-off and long-range standoff weapons in more sophisticated threat environments. The dispensers discussed above were designed to have a multi-mission capability and will be used to deliver a wide range of submunitions in addition to BKEP, which should be available by FY 88.

AIRFIELD CLOSURE WEAPONS

QUESTION: Does the Air Force plan to buy other airfield closure weapons to compliment or supplement the Durandal and/or B-KEP weapons? If yes, what are these systems, what are their estimated costs, and when are they to be fielded?

ANSWER: The Air Force is evaluating a variety of candidate mines for use in conjunction with our cratering munitions. The Gator mine is now in production. The Extended Range Anti-Armor Munition (ERAM) begins Full Scale Development (FSD) in FY 85 and is expected to be ready for production in FY 88. Both these mines are anti-armor weapons which could have application in the airfield attack role. Several foreign mines are also being considered, including the British HB-876 and the German MUSPA/MUSFA. In addition to mines, the Air Force is procuring a wide range of weapons which will be effective against the airfield target system including the AGM-130, JTACMS, CEM, and the LLLGB. In the cratering category, we are continuing to review and evaluate the progress of the British SG-357 and the German Stabo submunitions.

PRIMARY EMPHASIS FOR THE AIRFIELD ATTACK MISSION

QUESTION: Based on prior testimony, there appears to be some disagreement within the Air Force about whether airfield closure should emphasize runway attack systems such as Durandal or other weapons designed to attack and kill aircraft and facilities:

Has the Air Force determined where the primary emphasis should be placed for the airfield attack mission? (For example on runway closure or aircraft/aircraft facilities attack weapons.)

ANSWER: Yes, the airfield is a complex of many different targets that support the generation of combat sorties and as such the Air Force requires an appropriate mix of weapons to strike the various components of this complex. We do not focus on one particular target such as runway surface alone, rather we are concerned about the target array as a whole. Some of the primary targets are operating surfaces, aircraft (in the open or sheltered), and support facilities. This view was agreed by the senior Air Force leadership at an Airfield Attack Broad Area Review in Aug 82.

AIR FORCE'S EMPHASIS FOR AIRFIELD ATTACK WEAPONS

QUESTION: If a definite approach has not been finalized, what confidence does the Air Force have that the planned procurement of Durandal will not be wasted in the event the Air Force emphasis for airfield attack weapons changes in the near future.

ANSWER: The flexibility afforded by the combination of manned aircraft and effective air delivered munitions gives the AF much

confidence in its program to procure a mix of weapons with varying capabilities. Deterrence depends on holding the enemy's most critical targets at risk, while combat effectiveness depends on the flexibility to effectively strike a wider variety of targets whose criticality changes as a function of the battle situation. While the Durandal requirement is sized on the airfield attack objective, other scenarios/battle situations may make it just as important as a hard surface cratering weapon in mountain pass highways, railroad beds, or wide area hard storage sites.

UNIT PRICE FOR THE BSU-49 AIR INFLATABLE RETARDER

QUESTION: Has a firm unit price been established for the BSU-49 retarder for FY 1985? If so, what is the price?

ANSWER: No. At this time we are still operating with the Single Manager for Conventional Ammunition (SMCA) official estimate of \$753.12 which was reverified 2 Mar 84.

UNIT PRICES FOR THE BSU-50

QUESTION: Have firm unit prices been established for the BSU-50 FY 1983, 1984, and 1985 programs? If so, what are they?

ANSWER: No. Unit price estimates remain as shown in the FY 1985 President's Budget backup justification.

PRICES FOR CONTAINERS FOR RETARDERS

QUESTION: Have firm prices been established for containers for the FY 1983, 1984, and 1985 programs for both retarders? What are they?

ANSWER: No. The containers are also based on the Single Manager estimates and costs are included in the BSU-49/50 estimates.

FUNDING FOR RETARDERS LLLGBS & FMU-139 FUZES

QUESTION: Why are funds needed for more retarders and LLLGBs than for FMU-139 fuzes?

ANSWER: The requirements for retarders, LLLGBs and FMU-139 fuzes are all stand alone requirements. There are sufficient alternate fuzes in the Air Force inventory to fuze all programmed retarders and LLLGBs with a fuze. Most of these fuzes will decrease operational utility, safety, or reliability if used with LLLGBs and/or retarders, and we are requesting procurement of FMU-139 fuzes for these roles. Ideally, added fuzes would be procured; however, the maximum FMU-139 fuzes that are producible are already programmed.

DELIVERIES FOR RETARDERS

QUESTION: What is the current status of deliveries for both retarders in FY 1982 and FY 1983 programs?

ANSWER: FY 1982 deliveries for BSU-49 and BSU-50 are complete. FY 1983 BSU-49 deliveries began in Jan 84 and will complete in Dec 84 per the SMCA. The FY 1983 BSU-50 deliveries began in Mar 84 and will complete in Dec 84, also per the SMCA.

IMBALANCE BETWEEN RETARDERS AND RELIABLE FUZES

QUESTION: Given the imbalance between retarders and reliable fuzes, should production of prior years retarder programs be reduced to a one-shift operation and the FY 1985 program deleted?

ANSWER: No. Curtailing production of retarders is operationally unwise due to the low stock levels of these items and the greatly increased combat capability they provide. In redressing the imbalance between bombs and retarder fins, prior year procurements were originally sized to a one-shift operation and the contractor opted to a two shift operation due to delays encountered by the subvendors. This entailed no added cost to the Air Force.

IMPROVED 2,000 POUND BOMB

QUESTION: What will be the requirements for the Improved 2,000 Pound Bomb versus the present MK-84 explosive bomb? Will there be separate requirements?

ANSWER: A requirement for the Improved 2,000 Pound Bomb will be computed in the course of developing the FY 1986 Program Objective Memorandum. In the meantime, the Improved 2,000 Pound Bomb is required to address a limited number of sensitive targets. Separate requirements for the Improved 2,000 Pound Bomb and the present MK-84 will be computed. These requirements will be based on a most cost effective criteria. In general, the Improved 2,000 Pound Bomb will be used against targets like concrete structures where penetration is desired, and the present MK-84 continue to be used against those targets where a surface or airburst blast/frag effect is desired.

DELAY FUNDING FOR THE 2,000 POUND BOMBS

QUESTION: Should funding for 2,000 pound bombs be delayed until the improved bomb can be produced in high quantities?

ANSWER: No, the 2,000 pound bomb is a [deleted] solution to solving a portion of the hard target problem. Presently, the Air Force [deleted] --at risk. The production plans are to build the hard target 2,000 pound weapon with current explosive fills to [deleted] of these targets. Later year production is planned to contain insensitive explosive fill which is required to withstand the shock when attacking the very hardest targets. The bomb casing for both versions is the same design, only the explosive fill is changed.

PRODUCTION OF THE IMPROVED 2,000 POUND BOMB

QUESTION: Is production of the improved 2,000-pound bomb scheduled to begin with FY 1987 funds or during FY 1987 with prior year funds?

ANSWER: Limited production will begin using FY 1985 funding and deliveries will be made in the FY 1985 funded delivery period, which is for this item in FY 1987.

CONSUMPTION AND USAGE OF THE MK-84 TRAINING BOMB

QUESTION: What is the reason(s) for the significant difference between forecast consumption and reported usage of the Mk-84 training bomb for the period July through December 1983?

ANSWER: The main reason for the less than forecast Mk 84 consumption is that there were not enough Mk-84 inert assets available to fulfill the MAJCOMS requirements. The forecast consumption is based on the yearly requirement as submitted by the MAJCOMS. Because individual units expend Mk-84s differently over the year, a six month expenditure total may not be one-half of the yearly total.

EXPENDITURES OF MK-84 TRAINING BOMBS

QUESTION: What are actual expenditures of Mk-84 training bombs from July 1, 1983 to the present versus those forecast. If significantly different from forecast, explain.

ANSWER: From July to December 1983, 700 Mk-84 inerts were expended. The forecast expenditure for this period was 2,130. The difference is because the weapons were allocated at less than 100 percent during Calendar Year 83 due to low stock levels. Expenditures for January to March 1984 were 1,577 versus 1,522 forecast.

COST SAVING MEASURES OF THE MK 84 TRAINING BOMB

QUESTION: The Air Force recently took several cost saving measures with the Mk-82 500 pound training bomb. Can similar measures be taken with the Mk-84 training bomb?

ANSWER: Yes; however, due to the larger size of the Mk-84, a new cost/benefit analysis is required. No conversion to such a new version is planned before FY 1986 production, since a stock of the current Mk-84 empty bombs is required to support fuze testing requirements. The revised item will not support fuze testing since the internal fuze conduits are eliminated from the design to save production costs. If the cost/benefit analysis shows a benefit in modifying the design, we will convert to the new design in FY 1986, and reserve sufficient prior production Mk-84 Empty bombs for fuze testing as we did for the Mk-82.

TESTING OF LLLGB FOR Mk-82 BOMBS

QUESTION: Testing of LLLGB kits for Mk-82 bombs is still in progress. When does the Air Force plan to complete the remaining developmental and operational tests of the Mk-82 kit?

What are test results?

ANSWER: Completion of testing is planned for October 1984. Approximately 15 additional GBU-22 (Mk-82) tests will be conducted between now and October 1984, to validate software changes.

To date, three DT&E tests have been conducted. The GBU-22s were tested with two successfully hitting the target and one missing due to a roll gyro failing to uncage. This problem was hardware related and not due to new software. The problem has been corrected.

PRODUCTION OF THE MK-82

QUESTION: Does the Air Force anticipate proceeding with production of the MK-82 based on the results of the tests completed?

ANSWER: No. The current plan is to complete testing on the Mk-82 (GBU-22) with the new software prior to making a production decision.

AVAILABILITY OF THE MK-82 KIT

QUESTION: If the Mk-82 kit is not ready for production in FY 1985, what action will the Air Force take and what is the cost impact?

ANSWER: A complete review of the test results is required before a course of action with respect to the GBU-22 (Mk-82 kit) is decided upon. The Air Force has a large requirement for the GBU-24 (the Mk-84 kit) which has not yet been satisfied. If the GBU-22 is not ready for production in FY 1985, the Air Force will continue to procure GBU-24s. Due to the small unit cost variance between the two weapons, no significant cost impact is anticipated.

TAIL ASSEMBLY FAILURE

QUESTION: There was a tail assembly failure during testing of LLLGB kits for Mk-84 bombs.

Will the failure require modification of kits in production?

If yes, what is the anticipated cost of these changes?

Also, what impact will the changes have on meeting the production schedule?

ANSWER: No modification of production kits will be necessary as the result of the tail assembly failure. The production tail fin is constructed of aluminum. The tail fin tested during the recent failure was constructed of laminated plastic and the failure was a result of the plastic delaminating in flight. The plastic tail fin was tested as a potential production cost reduction item. The solution to the problem will be to continue to use aluminum fin until a plastic fin is completely qualified.

PRODUCTION CAPACITY FOR FY 1985

QUESTION: What is the current and projected production capacity for FY 1985, and when will the capacity be increased?

ANSWER: Currently, the contractor is operating at a rate of 200 units per month because of the relatively small quantities being procured by the Air Force. However, the current and projected capacity is 500 per month through the FY 1985 procurement.

PRODUCTION CAPACITY PER MONTH

QUESTION: If production capacity is only 200 units per month, what will the additional costs be to bring the line up to the planned capacity of 500 units per month or higher? Will the Air Force have to provide funding for all or part of these costs?

ANSWER: As stated, the current capacity is 500 per month.

PROCUREMENT LEAD TIME

QUESTION: The procurement lead time for the LLLGB kit was shown as 17 months in the FY1984 budget, but has increased to 19 months in FY 1985. Why has the procurement lead time increased, and what actions, if any, does the Air Force expect to take to shorten the lead time in the future?

ANSWER: The procurement lead time is broken down as follows: Six months for contract award; fifteen months for the longest production item (i.e. rate sensor). After learning curve adjustment beginning with FY 1986, the lead time may be reduced by two months.

TV AND IIR VARIANTS OF GBU-15S

QUESTION: What is the total inventory posture and requirement for the TV and IIR variants of GBU-15s?

ANSWER: The current requirement for the GBU-15 is weapons and reflects 52/48 percent mix of TV (d) and IR (d) variants; however, the IIR requirement is expected to increase. Procurement, including units budgeted in FY 85, will provide an inventory of approximately 1,387 TV and 300 IR weapons. In light of the development of the powered GBU-15 version, the Air Force is readdressing the overall GBU-15 requirement.

IIR REQUIREMENT

QUESTION: Since the Air Force had not planned to procure TV guided weapons in FY 84 and subsequent years, will the total IIR requirement be reduced, relative to the number of TV weapons bought until the IIR version is ready for production? If not, why?

ANSWER: No. The Air Force did budget to buy TV versions in FY 84. Procurement of 300 TV and 300 IIR GBU-15s in FY 85 is required to address existing requirements. Realizing the exact mix of TV and IIR variants does not overshadow achieving the overall requirement for this standoff, precision guided weapon. While the TV version is the preferred weapon in clear, daytime environments, the IIR version has a greater versatility in limited visibility (common to Europe) and at night.

USABLE GBU-15s

QUESTION: How many GBU-15s are unusable because of delays in delivery data links for the weapon? What is the maximum number of GBU-15s that could be unusable before the delivery problems are corrected?

ANSWER: There is currently a delivery delay of 146 weapon data link units. This delay has been decreasing over the past several months. The delay is the result of a manufacturing yield problem on one of the amplifier circuits in the weapon data link. This circuit is supplied by one manufacturer. Because the GBU-15 is a modular weapon system and the delay is a result of a minor amplifier yield problem, the AF anticipates the problem will be solved and all deliveries received within the contracted delivery period. Therefore, no GBU-15s will be unusable as a result of the current amplifier yield problem.

DATA LINK DELIVERY PROBLEM

QUESTION: What action does the Air Force plan to take to correct the data link delivery problem and when is the problem expected to be resolved? If the corrective actions are not successful, what other options does the Air Force have to ensure that GBU-15s are usable when they come off the production line?

ANSWER: The weapon data link delivery problem is the result of a manufacturing yield problem from a single supplier of one amplifier used in the weapon data link. Two actions are being pursued. The current supplier's deliveries are increasing, and a new circuit design is being qualified by three suppliers. Either of these solutions would be sufficient to solve this delivery problem. Since the circuit is not an unusually sophisticated one, these corrective actions are expected to produce circuits in sufficient quantity to allow for delivery of all weapon data links within the contractual delivery period. No additional actions are anticipated since either solution will solve the problem.

QUESTION: The Air Force plans to increase the FY 1984 buy of GBU-15 TV weapons to about 400 units using FY 1982 funds, and has requested funds for even more TV weapons in FY 1985.

Will the increase in quantities aggravate the problem now being experienced because of late delivery of the data links?

ANSWER: No. With the two corrective actions being pursued, the weapon data link delivery problem will be resolved with all contracted weapon data links delivered within the contract delivery period.

MIX OF TV TO IIR WEAPONS

QUESTION: Will the procurement of additional TV versions create an imbalance in the mix of TV and IIR weapons available/needed for tactical use? If so, to what extent will the night attack capability be degraded by increasing the quantity of GBU-15 TV weapons?

ANSWER: No, the current requirement (based on calculations for FY 89) for GBU-15 is (d) weapons and reflects a 52/48 percent mix of TV (d) and IIR (d) variants. Procurement, including units budgeted in the FY 85 PB, should provide an inventory of approximately 1387 TV and 300 IIR weapons.

RESULTS OF IOT&E ON THE GBU-15 IIR

QUESTION: What are the results of IOT&E conducted to date on the GBU-15 IIR?

ANSWER: The Initial Operational Test and Evaluation (IOT&E) of the GBU-15 Imaging Infrared (IR) system has been ongoing since Oct 83. So far, test efforts have consisted of aircrew training missions and captive data flights. Results of the captive flights have been good with emphasis on the performance of the Infrared Guidance Module (IRGM). The first weapons drop is tentatively scheduled for the last week in April, with IOT&E scheduled for completion in late 1984.

CURRENT STATUS OF BDU-33 DELIVERIES

QUESTION: What is the current status of BDU-33 deliveries for the FY 1981 and FY 1982 programs on contract with the delinquent contractor?

ANSWER: Contractor is producing at a reduced rate, and he is estimating completion of the FY 1981 contract in Sep/Oct 1984. He will begin FY 1982 production in Oct/Nov 1984.

CONTRACT DELIVERY SCHEDULE OF BDU-33

QUESTION: Is the contractor meeting the present contract delivery schedule?

ANSWER: No. The contractor came close in January and February 1984, but prior months were far below schedule.

DELIVERY DELAYS

QUESTION: Other contract deliveries for the FY 1983 and FY 1984 programs have been considerably faster than forecasted. As a result, are delays in deliveries of the earlier programs causing serious problems for the Air Force?

ANSWER: The accelerated deliveries have compensated for the delayed contract deliveries. Therefore, no serious problems are being encountered.

LEAD TIME IN THE FY 1985 BUDGET

QUESTION: Is the 12-month lead time used in the FY 1985 budget documentation realistic?

ANSWER: Yes, based on past experience excluding the extraordinary efforts required in FY 1983 and FY 1984.

TEST RESULTS ON CBU-89 GATOR MINE SYSTEM

QUESTION: What are the results of tests to demonstrate that the Gator technical issues have been resolved?

ANSWER: No additional testing was required. Trip wire fix was previously identified by Army testing of other FASCAM (Family of Scatterable Mines) and was tested satisfactorily at the subcomponent level. Hardening of the anti tank mine was an added requirement to increase GATOR suitability in the airfield denial role. Because of the simple nature of the fix, potting electronics in the mine, no additional testing was deemed necessary. Both problems were minor and not critical to overall system performance. Fixes will be confirmed in FOT&E tests.

CHANGES TO PRODUCTION LINE UNITS

QUESTION: Have the issues related to reliability, trip-wire sensitivity, and hardening been resolved or will additional efforts on these problems be required? When will these changes be incorporated into production line units?

ANSWER: Trip wire has been modified and the anti-tank (AT) mine has been hardened. Fixes will be demonstrated in FOT&E. These improvements are incorporated in all production mines. FOT&E

will start in first quarter FY 1985 at which time the improvements will be verified.

EFFECTIVENESS OF CBU-89 GATOR MINE SYSTEMS

QUESTION: Did the tests identify any potential problems that had not been identified previously? If so, what are these problems, what impact could they have on the Gator's effectiveness, and what actions, if any, does the Air Force plan to take to resolve these problems?

ANSWER: No additional tests have been conducted. The testing of fixes to previously identified deficiencies will be conducted during FOT&E, scheduled to start in the first quarter of FY 1985.

PROCUREMENT LEAD TIME ON CBU-89

QUESTION: Why is the procurement lead time expected to be 20 months? Can it be shortened?

ANSWER: The current procurement lead time is broken down as follows:

Three months for contract award.

Fourteen months for longest lead item (i.e., electronic lens of mine).

Three months to assemble the Gator mine.

After significant quantities of CBU-89s are built, leadtimes will be reviewed based on actual experience in assembly operations and it is anticipated that production efficiencies could result in up to a two month reduction in production leadtime for the FY 1986 buy.

ECPs ON CBU-87 CEM

QUESTION: Air Force budget documents show that over \$10 million of the amount requested for the CEM is for engineering change orders and proposals.

What is the type and purpose of engineering changes expected by the Air Force?

To what extent will these changes impact performance, producibility and cost?

What is the technical risk associated with major changes planned?

ANSWER: The \$13.4 million in ECO/ECPs for FY 1985 is less than 5% of the total program and is to cover unknown, unplanned changes such as those normally experienced as a result of production line process changes, First Article Acceptance Tests (FAAT), and FOT&E. The impact and technical risk associated with these unknown changes cannot be predicted at this time in any form other than an overall dollar requirement based on the history of other programs. Air Force experience has shown that this percentage of funding is required as a minimum to assure that a system with suitable performance can be provided to our operational commands.

These changes are not anticipated to impact performance, producibility, or cost beyond that budgeted.

The technical risk is very low since no major changes are anticipated. These ECO/ECP funds are planned to guard against the risks involved in beginning a production line effort.

SECOND SOURCE CONTRACTOR FOR CBU-87 CEM

QUESTION: What is the current status and plans for selecting a second source contractor?

ANSWER: Our plan is to competitively select and qualify a second source with FY 1984 funds.

Requests for proposals were released in March with responses due this month. Contract award is scheduled for September 1984.

SURGING PRODUCTION CAPACITY ON CBU-87 CEM

QUESTION: What impact will surging production capacity have on unit costs? Does the Air Force plan to continue "surging" production capacity to obtain quantities planned for out-year procurements?

ANSWER: The FY 1985 procurement from the existing source will be on a single shift operation. In increasing the production rate to meet the higher quantity in FY 1986 and beyond, the most competitive source will go to a more efficient two shift operation (unit price is estimated to be 10% less using two shifts). This, most efficient, two shift operation will be maintained in subsequent years until the Air Force near-term procurement objective is met. Beyond that point, production will be reduced to a rate that will maintain a warm base for mobilization purposes until the inventory objective is achieved. The production rates have been developed in close coordination with the Army Single Manager for Conventional Ammunition for facilities specifically designed for these rates.

ONE-SHIFT PRODUCTION RATE

QUESTION: Since a second source contractor is to begin producing CEMs in FY 1984, wouldn't price competition be achieved for the total buy if the Air Force limited the existing contractor to a one-shift production rate? Explain

ANSWER: Existing contractor will be on a single shift operation for the FY 1985 buy and is not planned for a two shift operation until the FY 1986 and later buys. In FY 1986 and beyond the second source will apply significant price competition as his designed production rate is obtained.

LIFE CYCLE COST ESTIMATE FOR THE CEM

QUESTION: What is the latest life cycle cost estimate for the CEM? Does this estimate allow for production "surge" costs and/or benefits expected from developing a second source contractor?

ANSWER: The latest CEM life cycle cost estimate for procurement through FY 1989 is 3,257 million (then year) based on the current inventory objective. This estimate assumes that production will occur on the more efficient multiple shifts and that the second source is introduced to provide competition.

LEAD TIME FOR THE CEM

QUESTION: Why is the lead time for the CEM 21 months, and can it be shortened?

ANSWER: Twenty one (21) months lead time is a realistic lead time for the CEM. The lead time consists of six (6) months adminis-

trative lead time for procurement actions (including solicitation for bids, formal announcements, required contractor response times) prior to contract award. Then 15 months are required for contractor to produce the hardware and Load, Assemble and Pack (LAP).

This lead time can not realistically be shortened.

FUNDING FOR CHEMICAL MUNITIONS PRODUCTION FACILITIES

QUESTION: Since funding for the chemical munitions production facilities was deleted from the Army's request, why is the Air Force requesting funding for the Bigeye bomb?

ANSWER: The Air Force continues to support the Bigeye bomb as the only near term weapon which will afford the Air Force a long range, persistent agent chemical munition. The FY 85 PB requests funds only for long lead time items for the Bigeye bomb. Actual funds to provide a full up chemical weapon will be required at a later date subject to Congressional approval. While acknowledging the FY 85 budget action, the FY 85 budget request is a balance between military/national needs and realistic program development.

INCOMPLETE ROUNDS OF BIGEYE BOMB

QUESTION: What is the justification for requesting incomplete rounds (bomb components without the chemical fill)?

ANSWER: The DOD request for Bigeye bomb components without fill meets the intent of the FY 84 Authorization Act which allowed for production (facilities and munitions components) but specifically prohibited the final assembly of any chemical weapons pending Congressional review. The proposed DOD action requesting incomplete rounds was approved by the Assistant Secretary (Comptroller).

QUESTION: Why does the Air Force feel that the Bigeye is ready for production in light of the developmental problems being experienced?

ANSWER: Previous developmental problems have been resolved. Pressurization problems have been redressed by the off-station mixing concept which has been validated through flight tests. The AF feels the FY 85 budget request for Bigeye does not involve other than low risk activities.

MJU-7B, IR, FLARE

QUESTION: Has the SMCA awarded a contract for the FY 1983 program quantity of flares? If so, what was the unit price? Was the contract for flares without the safe and ignition device? If the unit price was lower than the SMCA estimate, what is the amount of excess funds and how will these funds be used?

ANSWER: The Single Manager for Conventional Ammunition (SMCA) has not yet awarded a contract for the FY 1983 buy. Best SMCA award estimate is late April 1984.

The solicitation is for either configuration, with or without the safe and ignition device. Until after award, we will not know which way the price and the contract will be awarded.

UNIT COST OF MJU-7B, IR, FLARE

QUESTION: Is the unit cost used in the FY 1985 budget request overstated because the safe and ignition device will be eliminated?

ANSWER: The price estimate used in the budget justification was made by the Single Manager for Conventional Ammunition (SMCA) and remains their current estimate. No revised estimate will be made by the SMCA until after responses to the current solicitation are received.

UNIT PRICE OF MJU-2/B IR FLARE

QUESTION: Since a contract was awarded in October 1982 for \$18.84 per flare, does the Air Force think the \$69.95 estimated unit price for FY 1985 is reasonable?

ANSWER: The FY 1985 estimate from the Single Manager for Conventional Ammunition has been confirmed several times. It does appear to be inflated; however, the October 1982 contract was awarded to a manufacturer with no prior experience in producing IR countermeasure flares and Navy personnel have informally indicated that the contractor may have "bought in" on this contract. Based on costs of other flares, the October 1982 contract appears to be significantly below actual production costs.

ADDITIONAL QUANTITIES OF FLARES

QUESTION: The FY 1982 and 1983 budget requests were based on unit prices of \$60.89 and \$61.09, respectively. Since the FY 1981 program was awarded at a unit price of \$18.84, it appears likely that the FY 1982 and 1983 unit prices will be significantly lower than the unit prices used in the budget requests. If this situation occurs, does the Air Force plan to procure additional quantities of flares or to use the available funds for reprogramming?

ANSWER: First priority would be toward increasing production quantities to the level that could be procured within the available funds. Should funds be required to support a higher priority munitions program; however, any excess funds above those needed to buy the original quantity will be used to fill the higher priority effort. The Air Force refrains from reprogramming funds out of the munitions account.

REDUCTION TO THE FY 1985 REQUEST

QUESTION: If the Air Force plans to procure additional flares under the FY 1982 and 1983 programs, could the FY 1985 request be reduced?

ANSWER: No. Regardless of the actions that may be taken with the FY 1982 and 1983 programs, a significant shortfall will still exist in wartime stocks of this item. As a result, continued high rate production will be required to achieve near term inventory objectives.

BUDGET REQUEST UNIT PRICE

QUESTION: If the FY 1982 and 1983 programs have already been awarded at unit prices lower than the unit prices used in the budget

requests, explain what actions were taken with respect to increased quantities or reprogramming.

ANSWER: The FY 1982 and FY 1983 programs have not yet been awarded.

MJU-10/B IR FLARE

QUESTION: What is the likelihood of deliveries starting in January 1986?

ANSWER: Based on currently established leadtimes, FY 1985 deliveries will begin in March 1986 as reflected in the backup documentation to the FY 1985 request.

CURRENT COST ESTIMATE FOR FMU-139 FUZE

QUESTION: What is the current cost estimate for the FMU-139 fuze and how does it compare to the unit cost used in the FY 1985 budget request?

ANSWER: The Air Force independent estimate of FMU-139 total system (fuze, power supply, container, nose plugs, and T-lug divertors) unit cost is \$950. During the Budget Review by DOD, the Air Force was directed to use the Navy System Program Office revised cost estimate of \$759 which remains their current estimate and the Air Force's official estimate.

PROCUREMENT LEAD TIME FOR THE FMU-139

QUESTION: What is the procurement lead time for the FMU-139 FY 1985 program?

ANSWER: The FY 1985 contract award is scheduled in April 1985. The first delivery is 9 months later (Jan 86).

DELIVERY SCHEDULE

QUESTION: Whether the lead time is 10 or 14 months, production will extend beyond the fiscal year funded delivery period if the contractor can not begin production until June 1986. Why should funding be provided for quantities scheduled for delivery after the funded delivery period?

ANSWER: January 1986 will be the first delivery per latest Navy schedule and deliveries will be within the funded delivery period based on their schedule.

PRODUCTION TIME OF THE FMU-112 FUZE

QUESTION: Could the FMU-112 fuze be produced within the FY 1985 funded delivery period?

ANSWER: Yes, if the FY 1983 and FY 1984 funds were directed toward FMU-112 production.

QUESTIONS SUBMITTED BY SENATOR WEICKER

FIGHTER ENGINE COMPETITION

Examination of long-range Air Force procurement plans suggests a potential need for about 4300 engines to power F-15/16 fighters over the next 15 years. Assuming all remaining F-15s are powered by Pratt and Whitney engines and all F-16C/Ds funded through fiscal year 1989 have General Electric engines, each company would receive an equivalent share of business--roughly 1350 engines apiece. Provided both fulfill all contractual obligations and deliver more reliable engines as promised, that could be considered a fair division of the market. Concern arises, however, over the 1600 engines for the F-16s that may be purchased throughout the 1990s. As the first F-16F is supposed to be funded in FY 88-89, that might be an appropriate time to reopen the competition in a formal sense.

QUESTION: Would the Air Force consider reopening the competition in connection with the F-16F procurement beginning in fiscal years 1988-89?

ANSWER: The Alternate Fighter Engine competition resulted in proposals from both General Electric and Pratt and Whitney which contain priced engine options for the six year period FY 1985-90. FY 1991 is the first year the Air Force would have to "reopen the competition" to satisfy F-15 and F-16 engine requirements unless there was a special reason to do so sooner. The Air Force will continue to consider all options available in selecting high thrust engines for our fighters. However, it is premature to commit to reopening the competition in 1988-89 in connection with F-16F procurement.

INCREASED THRUST

Because of improvements in the air-to-air performance of the new Soviet fighters and growth in the weight of our fighters, some believe that we must continue developing higher thrust versions of both the General Electric F110 & Pratt and Whitney F100 engines. I share this view. Congress has recognized the need for increasing the thrust of these engines and each year has been adding money to the budget for that purpose, including \$50 million for fiscal year 1984.

QUESTION: How is the Air Force planning to use the \$50 million provided in fiscal year 1984 for added thrust?

ANSWER: The \$50 million was appropriated but was not authorized. A letter has been sent from OSD to Congress requesting release of these funds. When the \$50 million is received, it will be used to initiate Engine Model Derivative Programs at both General Electric and Pratt & Whitney for advanced higher thrust versions of the F110-GE-100 and F100-PW-220 engines. Full Scale Development (FSD) would follow, possibly as early as FY 86 leading to a production engine by 1990.

FUNDING FOR ADDED THRUST IN FY85 AND BEYOND

QUESTION: How and to what extent is the Air Force funding this program in fiscal year 1985 and beyond?

ANSWER: In FY 1985, the Air Force is requesting funds in the

Engine Model Derivative Program (EMDP) to demonstrate higher thrust advanced derivatives of F110 and F100 engines. Higher thrust engines for F-15 and F-16 aircraft may be needed in the 1990's to counter expected improvements in the Soviet tactical air threat. The EMDP demonstration program would last through FY 1987 and be complemented by a planned full scale development (separate from EMDP) of these engines to support a potential competitive procurement in FY 1989 for F-15 and F-16 aircraft.

SIKORSKY HH-60 NIGHT HAWK HELICOPTER PROGRAM

QUESTION: Has the Air Force reached a decision on the HH-60 Helicopter program?

ANSWER: The Air Force is considering alternatives to reduce the cost and scope of the HH-60 program. A final decision, however, has not yet been made.

QUESTIONS SUBMITTED BY SENATOR CHILES

PAYMENTS TO CONTRACTORS

Question: Mr. Cooper, the Grace Commission estimates that we could save 9.4 billion in the next three years if we were to return to the February 1981 rates for cash progress payments to defense contractors. CBO has made a more conservative estimate of \$6.0 billion. Whatever the estimate, these are directly outlay savings and that is what this deficit reduction exercise is all about. The reason given for increasing these payments was the high rate of inflation that existed in the beginning of 1981. Considering the low rate of inflation we currently enjoy, how much do you estimate we can save in the Air Force by returning to our previously accepted level of payments to contractors?

Answer: Reductions of the contract progress payment rates cannot create any savings in the Air Force because the progress payment rate merely controls the timing of funds paid to contractors rather than the amounts paid. However, the progress payment rate is thought to have an indirect effect on prices paid by the Air Force. Because progress payments allow contractors to perform their contracts with reduced reliance on borrowed or internally generated capital to finance work in process, the higher the progress payment rate the lower the amount of other financing required by the contractor. Consequently, a reduction of the progress payment rate could indirectly increase the prices sought by Air Force contractors in order to cover the additional commercial financing costs required by reduced Government financing.

PURCHASE OF TACTICAL FIGHTER AIRCRAFT

QUESTION: Mr. Cooper, this year if we were to appropriate what you originally requested in FY 1985 you would purchase 198 tactical fighter aircraft for \$6.3 billion. Of course implicit in that assumption is the 13 percent real growth the President originally requested. Now the President has reduced his request some \$14 billion and is asking for 7 percent real growth this year and 5 percent real growth each of the following two years. However, according to your plans you will increase tactical fighter

aircraft procurement in FY 1986 to 276 aircraft and in FY 1987 to 288 aircraft. The briefing your office provided my staff indicated that you would have to maintain production at this level of 280 aircraft per year if you were to reach and maintain your goal of 40 tactical fighter wings. In light of Defense Budgets, which are projected to shrink in the outyears, is it realistic to expect that you will be able to purchase 280 tactical fighters at between \$7-8 billion per year? More importantly, is your goal of 40 tactical fighter wings by FY 1989 realistic?

ANSWER: The fighter procurement proposed in the FY85 President's Budget proposed the following procurement:

	<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>
F-15	48	60	72	96	96
F-16	<u>150</u> 198	<u>216</u> 276	<u>216</u> 288	<u>216</u> 312	<u>216</u> 312

In light of the fiscal realities you alluded to, the procurement strategy proposed by the Tactical Fighter Roadmap briefing revised our plans downward significantly to reflect a more realistic, attainable procurement profile.

F-15	48	60	60	60	60
F-16	<u>150</u> 198	<u>216</u> 276	<u>216</u> 276	<u>216</u> 276	<u>216</u> 276

This profile procures a total of 84 fewer aircraft than that proposed by the President's Budget. As a result of the President's proposal to reduce the FY85 budget, we are reviewing the planned fighter procurement and force size.

SUBCOMMITTEE RECESS

Senator RUDMAN. The Chairman told me he would be along 45 minutes after the hearing started. That is not his problem really; he has leadership responsibilities.

I was delighted to spend the morning here.

I will close the record.

[Whereupon, at 12:05 p.m., Tuesday, April 3, the subcommittee was recessed to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1985

THURSDAY, APRIL 12, 1984

**U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.**

The subcommittee met at 10:12 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.
Present: Senators Stevens, Rudman, and Andrews.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE ARMY

**STATEMENT OF THE HONORABLE JAY SCULLEY, ASSISTANT SECRETARY
OF THE ARMY FOR RESEARCH, DEVELOPMENT AND ACQUISITION**

ACCOMPANIED BY:

**GEORGE DAUSMAN, OFFICE OF THE ASSISTANT SECRETARY FOR RE-
SEARCH, DEVELOPMENT AND ACQUISITION**

**MAJ. GEN. JAMES P. MALONEY, COMMANDER, U.S. ARMY AIR DE-
FENSE CENTER AND COMMANDANT, U.S. ARMY AIR DEFENSE
SCHOOL**

**MAJ. GEN. JAMES R. DeMOSS, DIRECTOR OF RESOURCES AND MAN-
AGEMENT, OFFICE OF THE DEPUTY CHIEF OF STAFF FOR LOGIS-
TICS, U.S. ARMY**

**MAJ. GEN. LOUIS C. WAGNER, DIRECTOR OF FORCE DEVELOPMENT,
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND
PLANS, U.S. ARMY**

ARMY MODERNIZATION

REVIEW OF BUDGET

Senator STEVENS. Good morning, gentleman.

This is the time for our review of the Army's original budget estimate. Continuing now today we will focus today on the Army's proposed research, development and acquisition request, plus selected aspects of the operations and maintenance accounts associated with the modernization effort.

BUDGET REQUEST

The original budget request is for \$21.1 billion for procurement and \$5 billion for R&D. For procurement, this is an increase of \$3.7 billion, or 21 percent—about 15 percent real growth. In R&D, the increase appears to be only \$728 million but is really much larger

because ballistic missile defense funding—some \$470 million in 1984—is now budgeted in a DOD account. Including the BMD request of \$842.5 million, the actual increase is about 31 percent and 26 percent in real growth.

While the committee has not officially received notification of any of the budget adjustments being considered as part of the President's deficit reduction measures, numerous proposals have sort of, what shall we say, seeped over this direction from the Pentagon.

We will keep those changes in mind as we proceed, but I want you to know that as far as I am concerned this committee is not going to press you for a decision on those matters until there has been a complete review by DOD. I just do not think we ought to approach the revisions to the President's budget on a piecemeal basis.

DIVAD

In addition, the report on last year's bill made the DIVAD—the division air defense—gun an item of special interest and asked that the Army be ready to testify on a number of key programmatic issues. A written report has been submitted in this regard and we will place it in the record along with the other prepared statements and return to it. There may be a need to discuss classified information here and we will try to leave DIVAD for last so that the hearing may remain open as long as possible.

INTRODUCTION OF WITNESSES

Let me welcome our witnesses this morning: Dr. Jay Sculley, Assistant Secretary for Research, Development and Acquisition; Maj. Gen. Dick Kenyon, Assistant Deputy Chief of Staff for Research, Development and Acquisition; and Brig. Gen. Charles Adsit, the DIVAD gun project manager.

I am sorry we are a little late this morning, gentlemen. As a matter of fact, my amendment is pending over there. I may be called at any time and my good friend and colleague, the Senator from New Hampshire, will continue, I believe, as long as he is able to stay. We do have the revenue bill. This is our last day in session, so we may have to pursue this matter further later.

I would like to hear your statements, so if I could, Dr. Sculley.

INTRODUCTION OF ASSOCIATES

Mr. SCULLEY. Thank you, Mr. Chairman and members of the committee. It is a pleasure for General Kenyon, General Adsit and me personally to appear before the committee.

At this time I would like to just briefly introduce the gentlemen in the second row: Mr. George Dausman from my office, an expert on acquisition matters; Gen. Jim Maloney, who is the commander of the Air Defense Center and School. I have General DeMoss, and expert on O&M and Gen. Lou Wagner from the Deputy Chief of Staff, Operations and Plans, who has been named to succeed General Merryman later this year as the Deputy Chief of Staff for Research, Development and Acquisition.

It is a pleasure for us to be here and a pleasure to explain how our Army proposes to equip itself. We look forward to working with the committee to meet our common goal, a goal of providing an Army of excellence, an Army that can fight anywhere and win when called upon.

For the past 2 years we referred to budget increases as important first steps toward resolving significant deficiencies in both the quantity and quality of our arms and equipment. To continue and support these past efforts we are presenting a combined procurement and RDT&E request of \$26 billion for fiscal year 1985.

BUDGET SUMMARY

(TOA - \$ IN MILLIONS)

	<u>FY 1983</u>	<u>FY 1984</u>	<u>FY 1985</u>
RESEARCH, DEVELOPMENT, TEST AND EVALUATION	3,895	4,259	4,987
PROCUREMENT			
AIRCRAFT	2,498	3,273	4,008
MISSILES	2,683	2,824	3,442
WTCV	4,597	4,663	5,093
AMMUNITION	2,124	1,940	2,494
OTHER	4,007	4,650	6,022
SUBTOTAL PROCUREMENT	<u>15,909</u>	<u>17,350</u>	<u>21,060</u>
TOTAL ACQUISITION	19,804	21,609	26,047

SLIDE 1

TOTAL BUDGET SUMMARY

We feel a deep sense of responsibility for requesting the resources needed to fulfill our missions. In thinking of the future, the most important mission may well be to provide a conventional warfare fighting capability that is credible for deterring any adversary from starting a major war.

Although the United States must maintain a nuclear deterrent capability for the foreseeable future, nuclear warfare is far more horrible to contemplate than any other type, and we need to exert our utmost to assure it never happens. If the United States does not have a credible deterrent in conventional warfare, the probability of a major nuclear war is increased.

USES OF TECHNOLOGY

- PERFORMANCE TO MEET THREAT
- REDUCE MANPOWER AND COST
- EASY OPERATION AND MAINTENANCE
- EASY SUPPORT

SLIDE 2

HIGH TECHNOLOGY USES

We can improve the credibility of our conventional warfare deterrent by using high technology to provide the performance needed to meet the threats, to reduce manpower and costs, to make Army systems easier to operate and maintain, and to make Army systems easier to support. We need to learn how to do this far more effectively than we have in the past.

Our Army can expect to find itself outnumbered by a Soviet adversary. Our success in overcoming the strength in numbers will depend, I feel, in large measure on the quality and effectiveness of our equipment.

The threat posed by the ever-increasing quality of Soviet weapons dictates a need to accelerate our modernization effort lest we continue to be faced with simultaneous deficiencies in both quantity and quality. The tank, attack helicopter and fighting vehicle are but three examples of a growing list of systems where the Soviets had moved ahead of us in quality in addition to quantity.

Considering the technological capability of the United States, we find it totally unacceptable for us to allow the Soviets to field better equipment. Fortunately, the resources to correct this qualitative imbalance have been made available to us. Today we have quantities of weapons systems that are a direct result of the additional funds you started providing us in fiscal year 1981.

STATUS OF EQUIPMENT

As of the end of February we have 1,669 M-1 tanks. There are 978 Bradley fighting vehicles accepted. The 500th Black Hawk helicopter was accepted in late February; I had the pleasure of being there. There are 6,487 Stinger missiles accepted, 88 multiple launch rocket system launchers accepted.

The attack helicopter is in production and being accepted, and the fiscal year 1984 contracts for this system, the AH-64, have

been negotiated within the budget. The first Sergeant York Division air defense gun was also accepted on March 13, and the second accepted on the 31st.

RESERVE COMPONENT

It is important to note that our modernization effort also applies to the Reserve component. National Guard and Army Reserve units are receiving, and will continue to receive, new and improved systems that cover the full spectrum of our mission needs. A battalion of the North Carolina National Guard began receiving M-1's in July 1983.

The same unit has also received their complement of the cavalry version of the Bradley Fighting Vehicle. Other items such as Roland and Stinger air defense systems, utility helicopters, and upgraded Cobra helicopters are being issued to Reserve component units.

COMPLEXITY OF NEW SYSTEMS

Some contend that our new systems are too complex and sophisticated. Unfortunately, these terms are often used synonymously. Our research, development, test and evaluation program is structured to blend together these two terms. Complex to me translates to complicated, and what is complicated in terms of operation or maintenance is to be avoided.

Sophisticated equipment, on the other hand, takes advantage of the best features of advanced technology. Such sophisticated equipment can be made easy to operate and maintain. For example, most of us remember when computers first came out and were the purview, really, of scientists, mathematicians, and engineers.

COMPUTER USE

Today the computer is common in the home, in the classroom and in defense. Today's home computer certainly is a sophisticated piece of equipment, and although it is complex because of its micro-circuitry and software, it is accepted as very commonplace. Its operation is fast, simple and accurate, and repairs are normally based on simple modular replacement concepts.

We have tried and will continue to try to apply the same logic in developing our military systems that range from a relatively simple laser rangefinder to the automatic search and track radar of the Sergeant York gun. Our objective is to use the best features of technology to obtain greater simplicity both for the operator and the maintainer while achieving greater capability.

We also use technology to bring about a synergistic effect on the battlefield. This is because we have found that the capability of our weapons used in combination is greater than the sum of their individual capabilities.

TECHNOLOGY BASE FUNDING

In the fiscal year 1985 RDT&E request we allocated approximately 16 percent of our R&D funds to the technology base.

Recognizing the enormous technology support available in the academic community and in commercial industry, the Army has chosen to focus its technology base on those areas of specialized military need. Selection of which R&D projects to fund is based on an assessment of the enemy threat, Army developments in tactics and doctrine, and an analysis of how and when the technology can be applied to Army systems.

The importance of an adequate R&D program has seldom been greater. Today the Soviet Union supports about twice our effort in military R&D and graduates five times as many engineers annually. The quality of their weapons has continued to improve because of their past R&D investment and, due to the size of their present program, we are now faced with the additional risk of technological surprise. With your support we will prevent that from happening. We are continuing to take steps to improve our management.

I would like to spend a brief moment to talk about our initiatives to strengthen the acquisition process.

ACQUISITION INITIATIVES

- **ACQUISITION STRATEGY**
 - **TIMELY PLANNING**
 - **ALTERNATIVE STRATEGIES**
- **EMPHASIS ON COMPETITION**
 - **IMPROVED PERFORMANCE**
 - **COMPETITION ADVOCATES**
- **SPARE PARTS**
- **UNPRICED CONTRACTUAL INSTRUMENTS**
 - **POLICY PROHIBITION**

SLIDE 3

ALERTNESS TO ACQUISITION PROBLEMS

We must be alert to acquisition problems that are not only program-related but are indicative of problems fundamental to our basic acquisition policies and procedures. All too often a problem comes to my attention at a time when few alternatives exist if the program objectives are to be achieved. If better up-front planning had been effected, those problems could have been avoided.

For this reason, I insist that detailed acquisition strategy planning be effected during the weapon system development phase, while alternative strategies can be meaningfully considered and properly implemented.

In order to enhance quality while reducing production, operating and support costs, various techniques are being used successfully, such as tailoring of specifications and standards, design to cost, cost-benefit and trade-off assessments, preplanned product improvements, value engineering, industrial modernization incentives, and, of course, competition and multiyear procurement when appropriate.

Additionally, standardization, commonality and interchangeability are promoted throughout the acquisition cycle to reduce lead time and acquisition costs. These policies have recently been restated and emphasized in acquisition management regulations AR 1000-1 and AR 70-1.

COMPETITION

In the area of competition, the Army has increased its competition performance from 37 percent in 1980 to 41.5 percent in 1983. Additional management attention to reduce the number of sole source procurements is largely responsible for this increase. We have established at our buying commands competition advocates who challenge sole source procurements.

SPARE PARTS PROGRAM

I will not dwell further on our efforts here but would mention briefly our efforts in our spare parts program. Much will be said elsewhere on that subject. Let me just say that our management emphasis will also enhance our competition performance.

All acquisitions of items in excess of \$10,000 will be reviewed for competition, including a review of technical data for that item and an analysis of the alternative acquisition approaches that could be followed.

UNPRICED CONTRACTUAL INSTRUMENTS

Additionally, I have issued a policy directive prohibiting the use of unpriced contractual instruments without specific advance high-level approval. Much to our dismay, an Army Auditor General review of Army acquisition practices revealed an unhealthy overdependence on the use of unpriced orders.

Unpriced instruments cannot be utilized for individual procurements in excess of \$3 million without individual approval of my office. This policy assures that unpriced contractual instruments will only be used when fully justified and where management of them can be properly executed. I believe these and other initiatives we are following will improve our stewardship of the funds entrusted to us through better program execution.

I have found that today's Army is one of professionalism and quality. With your continued support we will be able to continue the efforts that we have started over the past 3 years. These efforts, I feel, assure us of a better Army both today and tomorrow.

At this time, Mr. Chairman, we are prepared to answer any questions that you may have.

Senator STEVENS. General Kenyon, General Adsit, do you have any statements this morning?

SERGEANT YORK AIR DEFENSE GUN SYSTEM

STATEMENT OF BRIG. GEN. CHARLES ADSIT, PROJECT MANAGER, SERGEANT YORK AIR DEFENSE GUN SYSTEM

PREPARED STATEMENT

General ADSIT. Senator, I have a statement I would like to submit for the record.

Senator STEVENS. We are pleased to have it.

[The prepared statement of General Adsit follows:]

PREPARED STATEMENT OF BRIG. GEN. CHARLES ADSIT
PROJECT MANAGER
SERGEANT YORK AIR DEFENSE GUN SYSTEM

Mr. Chairman, members of the subcommittee:

The following information is provided in response to a request for information on five major subject areas:

SYSTEM PERFORMANCE AGAINST THE POSTULATED THREAT AND THE EVOLVING THREAT

When Engineering Development of the system was initiated in CY77, threat estimates were for the CY87 deployment period. The recent Post and Operational Effectiveness Analysis (COEA) update has also considered a late 80's deployment period.

Threat estimates for CY87 have not changed substantially since the original estimates made in CY77. In particular, the expected stand-off range for rotary wing aircraft, and the expected penetration and attack methods for fixed wing aircraft, have been re-verified. Although electronic jamming scenarios have changed, and some increase is expected in the jamming power expected, the net effect against the York Gun has not changed substantially.

The overall York performance has been excellent, despite numerous reports to the contrary in various magazines and newspapers. Twelve out of twelve firm design requirements, and the vast majority of cost/performance trade-off areas in the original requirement document have been met, and overall important parameters have been exceeded. Only four performance areas were traded off in a cost savings of about \$400K per fire unit. Both independent test agencies (AMSAA and OTEA) have rendered favorable reports for the York based on CY83 and earlier testing, including the expected electronic warfare.

The recent COEA update available in December, 1983, included current estimates for the threat capability in the late 80's. Direct comparisons were made of the capability of the current twin 40mm Sgt York Gun, and the "generic gun" as modeled in the CY77 COEA. The current gun, with minor modifications to account for earlier test shortcomings, was shown to be more cost effective than was the generic gun in the original study.

RESULTS OF THE RAM DEMONSTRATION USING INITIAL PRODUCTION HARDWARE

In the original DT/OT II (CY80) the reliability of all subsystems was generally at expected levels. In the Check Test (CY81/82), reliability problems were experienced with the armament/feed subsystem. Because of this, a full production configuration feed system was tested in CY83, and the results showed armament reliability to be back on the expected growth curve. The first two production fire units have now successfully completed 25-hour failure free Reliability Verification Test (RVT), indicating that reliability of the production systems is on track. The Design Verification Test (DVT) on Production Unit Number One, now scheduled for the April to May time frame, will result in an expanded reliability data base.

ARMY FORCE STRUCTURE STUDIES INCLUDING THE LATEST YORK COEA UPDATE

Studies have continually shown the need for a mobile, survivable, and effective air defense system to protect our heavy divisions from the fixed and rotary wing low altitude threat. The Sgt York has been designed to fill this critical need. The frontal air defense for Light Divisions is still being studied. The requirement for a Lightweight Air Defense System (LADS) is expected to be accurately defined in the near future. Since the Sgt York system is in the heavy tank class of vehicles, it lacks the air mobility to accompany the light division.

EXAMINATION OF ALTERNATIVES TO DIVAD

Army Force Structure Studies as mentioned above have, over the years, continually examined alternatives to Sgt York that might be more cost effective. The alternatives considered in the CY77 COEA, and the related shortcomings, are:

Stinger Under Armor. (Deleted).

Advanced Command-to-Line-of-Sight Missile (Laser Beam Rider - conceptual system). (Deleted).

Improved VULCAN. (Deleted).

In the COEA update and in a special study conducted in CY83, the Bradley Fighting Vehicle was examined as an air defense system. It was considered to have an (deleted).

UNIT COST REDUCTIONS

Unit costs for FY85 have been projected from the contractor's cost performance to date, and they do take into account the higher than previously forecasted unit costs.

Sgt York unit costs are shown below:

	FY84	FY85
FY85 Budget	2.65	2.77
FY84 Constant Dollars (Less Profit)	2.44	2.21

The constant dollar figures do show that costs are projected to follow the learning curve as expected, although at a higher level than previously forecasted.

The Army is considering breakout of some major system components such as the radar, turret and laser rangefinder, as a means to further reduce costs.

Recent correspondence between the Army and the contractor has made it clear that we are very serious about affordability, and is motivating intensive contractor cost reduction efforts.

We have baselined the FY85 program slightly higher than the FY84 program, to allow for a firm fixed-price contract and a reasonable profit, on projections from actual costs.

The program remains below the affordability target established at DSARC III in May 1982.

WARRANTIES

Senator STEVENS. I will be called momentarily. As I said, my amendment was up this morning.

I think it was an interesting comment you made about your cost control methods. I know if Senator Andrews were here he would ask you if there had been any impact on your operations of his initiatives dealing with warranties. Could you tell us, Dr. Sculley, has that had any impact on your operations?

Mr. SCULLEY. I think it has allowed us to focus on the question, at a minimum, sir. I would really be quite pleased to give examples, and one exists—one of the best one exists—right in General Adsit's program where in fact we feel that it really complies nearly to the letter and certainly in the spirit with this emphasis on warranty programs.

But there are a few general points I would make in that I feel that they are something that would be paid for up front. I do not look at them as an additional cost, but if we pay up front it has the potential for reducing operating and support costs later in the program.

I feel that there are many cases where the use of warranties are appropriate. There may be cases where they are inappropriate, but they should be evaluated. I think later in the hearing—or, if you prefer, now—General Adsit can speak to how those provisions have been incorporated in our contractual relationship with Ford Aerospace on the Sergeant York gun.

Senator STEVENS. Well, I would like to be able to go into that before I leave. I have been one who supported Senator Andrews' initiatives because it does seem to me that there is a relief clause on the initiative if it is in the interest of national defense to waive the provisions of his amendment, but it also seems to me that there is no alternative to examining the potential for availability of warranties in the first instance.

I think that that should be done, and to the maximum extent possible, and if it becomes a burden on the activities you are pursuing in the national interest I think that Senator Andrews would be the first to say that the objectives of the program ought to be achieved and that his amendment ought to be waived.

But, General, I would be happy to hear what you might have to say on that.

General ADSIT. Yes, sir. In our particular case we were able to gain, I think a very good warranty in a competitive environment between two very large contractors. The use of our warranty, I think—which is one of the strongest in OSD—shifts the risk of the financial risk away from the Government and to the contractor and helps mitigate some of the risk in the concurrency in this program.

The warranty specifically has a design warranty on it that it is very enforceable.

Senator STEVENS. What program is this, General?

General ADSIT. It is the Sergeant York air defense gun system sir, and this particular warranty we have. We feel that one of the key features is not only do we warranty the design of all of the systems bought under this fixed price contract but we are able to enforce it because we have a structured test of some 6 months long in which we test the unit to its specifications in the contract.

And if the system does not meet its requirements in those tests then the contractor is required to go back and retrofit all of the material produced or all of the material to be produced under that contract, which covers some 45 percent of the Army's total requirement. So it is a very strong motivation for the contractor to do it right the first time, to produce a quality product.

In addition, we have a warranty on each and every fire unit for workmanship also.

Senator STEVENS. All right, I must go. I appreciate your explanation.

Senator RUDMAN. I will probably finish the hearing.

Senator STEVENS. Thank you very much, General.

RESEARCH, DEVELOPMENT, AND ACQUISITION

STATEMENT OF MAJ. GEN. RICHARD D. KENYON, ASSISTANT DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT, AND ACQUISITION, U.S. ARMY

DIVAD WARRANTIES

General KENYON. If I might, Mr. Chairman, I would like to address warranties in a more general term.

Senator RUDMAN (presiding). Before you do, General Kenyon, could I just follow up with General Adsit just on that specific? I

understand your answer. Now could you give us one example within your program, the DIVAD Program, of a specific parameter of a specification, a component that would meet that specification? What would happen in the case where that specification was not met?

In other words, give us a real live scenario of how that would happen, and I think that Senator Andrews would find that interesting and I want to ask that in his behalf.

General ADSIT. All right, sir. I think we can find a very good one and bring up one of the problems we have had in the program to date in our testing and use that as an example.

Senator RUDMAN. All right.

General ADSIT. Back on previous tests on the prototype we had some problems with the feed system, with the reliability of that feed system, and it was of considerable concern to us.

The contractor in this case now was motivated very highly to fix that because of this warranty. Now, the action he took in the development phase was to advance the production of a production feed system so that he could test it, so that he knew that it was going to be good when it got into production testing, and he did that at no additional expense to the Government.

Now the way that we will test that is when the fire units go into our initial production test, which will be starting this September. If in that test the feed system does not meet its requirement then what he will have to do is to go back and redesign that feed system and remanufacture all of those feed systems that have been produced and put that fix into the production line.

MEAN ROUNDS FIRED BETWEEN FAILURES

Senator RUDMAN. And that specification for the feed system, I assume, would be the number of mean rounds fired between failures?

General ADSIT. Yes, sir. In this case 1,700 rounds is the figure. It is a specific number called out in the contract and every other performance parameter—the ability to be able to kill the target, how quickly you do it, and the reliability specifications for all of the subsystems—are also included in that contract.

The warranty provisions are also on all the spares that we have bought to date, so not only did we warranty the fire unit, we warranted the spares also.

TARGET ACQUISITION AND TRACKING

Senator RUDMAN. All right. In the area of target acquisition and tracking one of the problems that we all know of has been with the radar, but assuming that the technology of the radar is adequate and you have a problem of durability, I guess is what I would say, this was an aircraft radar that has been converted for use and there have been some problems, I understand, in rough terrain, and so forth.

What would happen if, after extension testing, it turned out that the durability of the radar just was not there and that, although it was a wonderful radar—when you brought it out to the range it did everything fine—when you took it on a 5-mile, over-the-hill

hike, when you got on target acquisition again you were having some problems because of the sensitivity of the electronics? What would happen in that case?

General ADSIT. Yes, sir. In the case of the radar you are correct that it is an adaptation of the F-16 radar—which, by the way, is the way we saved a lot of development costs in the program. What we did was to harden those components and we have had some 3,000 hours of fire control experience now in our testing.

That is not to say we have not had reliability failures. We have. We can trace none of them, though, frankly to the rugged environment in which we find the tank. We do shock-isolate those components, so we have not really had the type of failures to date that we can trace back to the shake, rattle and roll.

COLD WEATHER TESTING

Senator RUDMAN. How about things like cold weather operations which will be tested at Aberdeen this September in terms of the hydraulics and all of the various things that are so affected in the cold weather environment? Would those be covered by the specification that it must operate within a certain temperature envelope and if it did not the contractor at his expense would have to fix them?

General ADSIT. That is absolutely correct, sir. Those temperature requirements are specified. Both hot and cold temperature requirements are in there and he would have to fix it if he had a problem in that area.

Senator RUDMAN. Curiously, when was this contractual warranty provision inserted in this contract? This must have been some time ago.

General ADSIT. 1981, sir.

Senator RUDMAN. So obviously that was well before the requirement that was imposed by the Congress.

General ADSIT. Yes, sir. And we felt again that since we were trying to accelerate the fielding of a weapon system that the Government had to have some protection in doing that. That is why we structured that warranty.

Senator RUDMAN. One of the concerns here, both in the House and here in the Senate, on this program, of course, has been that there has been a reluctance to see this production funding released because of some of the problems that existed, even though obviously there is now a strong suggestion that many have been fixed.

But I assume what you are saying is that should you go ahead based on testing and then in subsequent quality control testing in the field some of these problems reoccur that the cost of fixing them is going to be borne by the contractor and not by the Government.

General ADSIT. That is absolutely correct, sir.

OPERATIONAL TESTING

Senator RUDMAN. When will the first operational tests occur?

General ADSIT. Sir, the testing that we have had to date—and there has been a series of four tests to date—has involved the operational tester and all of our tests have been conducted with troops,

not with contractors. Contractors have done the maintenance on the system, but the operation of the system has been done by the troops themselves from Fort Bliss.

We will have operational testing, a significant amount of operational testing, in 1985 and in 1986 prior to the deployment of the systems overseas. We will start some of this testing down at Fort Bliss. In fact, we already are into a test right now called design verification tests down at Fort Bliss and we are using troops in that test.

That test is primarily not operational, but the operational evaluator will be able to observe that test and take the results of its performance and reliability out of that test.

Senator RUDMAN. And then there will be further testing of a different nature at Aberdeen starting later this year?

General ADSIT. Yes, sir. In about June we are starting a test in which we hope to get a jump on any problems that might occur before we do our initial production testing.

HIGH VISIBILITY PROGRAM

Senator RUDMAN. Well, I would only comment that this has been a very high visibility program. I guess I do not have to tell you that, General Adsit. I guess you know that. And you know we do not want to see this as a classic case of going into production and finding down the line that we have got some essentially systemic problems that cannot be cured by quick fixes.

That has been the concern. Of course, the other concern has been the rather high cost of the unit itself. You know, that is not compared to anything, but it seems like a great deal of money for a single air defense gun, which is what it is.

General ADSIT. Yes, sir. I fully realize it is a very expensive weapon system, but I think what we have to think about is the payoff for it, and the total cost of this program is \$4 billion. Now what we are protecting, of course, is the ability of our heavy divisions to maneuver and the assets that we are protecting is about 50 billion dollars' worth and we have made some analysis which I do not think I can discuss in this open session but our calculations show—and they are estimates—that in about the first 2 weeks of a NATO war we would save about 1 billion dollars' worth of equipment across the U.S. forces in NATO.

DIVAD SURVIVABILITY

Senator RUDMAN. That leads to really my last question on this particular issue, and it is something that we cannot discuss specifically in open session, but I really in terms of time would prefer to keep this open and not have to go into closed session. So let me see if I can ask the question generally, and if you can answer generally—if you find you are uncomfortable with the question we will just have to discuss it another way.

There has been some concern expressed within the Army and in other places about the capabilities of the threat that this is designed to meet, and particularly looking at some of the new technology and some of the possible armaments of the Hind, which I believe is the MI-24, and the HIP, which is the MI-8, the HIP-E

and the associated weapons systems and the technology and the ranges they may carry.

Has that been looked at again very, very closely in terms of survivability of the Sergeant York?

General ADSIT. Yes, sir. We have looked at that very recently. In reaction to those concerns, some of the testing that we conducted in 1983 was against a standoff helicopter and without being specific we now feel like we have a reasonably good capability beyond our original range requirement and in fact we are able—we tested beyond our normal range and feel like we have a capability out there that will make it very uncomfortable for any guy that wants to stand off.

And that has been demonstrated in testing and we feel comfortable with that. We also feel comfortable with the fact that the ranges at which we are talking about, if we can make him stand off at that range his effectiveness will be limited in standing off at that range.

The other type of criticism which we have heard is that we cannot handle the maneuvering fixed-wing aircraft, and that is not true and never has been true. We can handle the maneuvering fixed-wing as long as he is maneuvering to engage a target. When he is taking his combat profile missions we can attack him and in fact we exceed the requirement to kill a maneuvering fixed-wing and we also exceed the requirement to kill the standoff helicopter.

So I think a lot of things that have been put in the press are just frankly not true. We have prepared a number of rebuttals to all the articles that have appeared in the press. I wrote one, a letter to the editor of the New York Times, and we have also prepared some white papers to rebut these allegations, and with your permission, sir, I would like to enter these in the record.

Senator RUDMAN. I would like to have them in the record of this hearing because of the controversiality of this.

[The information follows:]

DEPARTMENT OF THE ARMY
OFFICE OF THE PROJECT MANAGER, SGT YORK AIR DEFENSE GUN SYSTEM
DOVER, NEW JERSEY 07801

MAR 17 1984

Editor
The New York Times
229 West 43rd Street
New York, New York 10036

Dear Sir:

The editorial on the SGT YORK Air Defense Gun System that appeared in the New York Times on March 7, 1984 under the heading "The Gun That Shoots Fans" contains several unsubstantiated assertions and misleading statements. It also improperly interprets the results of our vigorous tests of an important weapon designed to protect US ground troops from air attack.

A radar is the only sensor which can reliably detect, sort out and track the myriad of targets encountered on the modern battlefield. To minimize time of development and cost to the tax payer, a ruggedized version of the combat proven F-16 radar was selected for the SGT YORK Gun. The relatively minor radar problems which have been found during 3 years of extensive testing have been corrected, usually requiring only a change to the software. The SGT YORK radar is designed to detect and track moving targets on the battlefield. The reported case of detecting a small fan on a nearby building was in fact an incorrect and incomplete report. We did get return signals from the building. The radar did not, however, ignore any targets presented to it. In addition, as properly stated in the article, "the gun is no dummy;" the system has hardware and software specifically designed to minimize the probability of improperly classifying the target. Furthermore, in the rare cases when automatic signal processors display such a target, the crews are trained to evaluate and ignore it. Extensive testing of the system has repeatedly demonstrated its ability to detect and engage all types of aircraft flying typical combat flight paths with the speed, range, accuracy and lethality required to defeat the threat.

The system uses a 40mm Bofors cannon which has been in service throughout NATO for over 20 years. The gun and ammunition are accepted at "NATO Standard". There are currently 47 users worldwide, including 12 NATO countries. The gun is produced by five NATO countries, the ammunition by seven.

During the Vietnam guerilla war, helicopters and other aircraft had to operate very close to the enemy, usually less than 1 kilometer, which made them vulnerable to small arms fire. This is not comparable to the NATO scenario of sophisticated enemy helicopters and aircraft and heavy tank division operations. In this scenario, the enemy has the capability to engage our forces well beyond small arms range. The SGT YORK is able to handle the helicopter at long range, as well as aircraft flying a non-linear flight path.

Mr. Esterbrook's assertion that the Soviet radar-controlled gun, the Shilka, is ineffective is untrue. It is a combat proven killer of aircraft and has been in the field in substantial numbers for years. It is, however, at least a generation behind the SGT YORK Gun in technology and has only about one-half the effective range needed on a European battlefield.

The SGT YORK Gun program has not been cancelled by Congress because it agrees that the Army needs the system and there have been no problems which would warrant cancellation. I assure you that the SGT YORK Gun program is continuously being reviewed by all levels of the Army, DOD and Congress to assure that it is being managed properly and in the best interests of the US.

The US Army put Ford Aerospace, the SGT YORK system contractor, under the warranty clause as early as 1981, although at that time the warranty provisions were called "Total System Performance Responsibility" and "Correction of Deficiencies". Under the terms of the Army's contract with Ford Aerospace, the contractor is required to repair, replace, retrofit and redesign to correct performance, workmanship and material deficiencies with no increase in cost to the government. In other words, we have guaranteed performance and reliability at a fixed price, a very favorable contract gained under competition. The Acquisition of a weapon system by the Department of Defense is serious business. The responsibility for insuring that the best interests of the American public are best served is not taken lightly. This program is within 3% of its program costs as originally predicted in 1978 and has cut 5 to 6 years off the normal development time and has saved the tax payer at least 500 million dollars.

It is unfortunate that a national publication is unable or unwilling to report, without serious distortion, complex and important issues clearly. Quoting Mr. Esterbrook does nothing to help your credibility. I quote a letter from the Secretary of Defense, Casper W. Weinberger, to Mr. William Whitworth, Editor of Atlantic Monthly, dated November 8, 1982:

"Dear Mr. Whitworth: The article on the Army Division Air Defense (DIVAD) system that appeared in the October 1982 issue of your magazine contains several unsubstantiated assertions and misleading statements. It also improperly interprets the results of our rigorous tests of an important weapon designed to protect U.S. ground troops from air attack.

"To obtain the best design and the most reasonable price, the Army emphasized competition throughout the development of the DIVAD. Both Ford and General Dynamics developed competing designs and constructed prototypes for our evaluation. They had great latitude to consider tradeoffs between cost and performance in order to ensure design of the most cost effective system. I believe that the Army's competitive approach to developing DIVAD contributed to keeping the program within original cost estimates.

"Because Ford's proposal provided the best value, they have been selected to build the DIVAD. The first production contract is a fixed-price contract with incentives for reliability and cost. As the article correctly states, the contract sets a target price for DIVAD, and a ceiling price 25% above the target price. If Ford meets the target price, Ford will incur no penalty. If Ford exceeds the target but remains within the 25% ceiling price, their profit will be decreased, not increased as the article contends. Therefore it is improper to conclude, as the article does that "The contract provides for a 25% overrun." Any costs above the contract ceiling will be borne entirely by Ford. Thus it is also incorrect to state: "Further overruns are permitted but beyond 25% Ford will not be paid any extra profit."

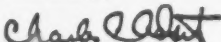
"I would also like to assure you that the DIVAD was carefully designed to counter a specific Soviet threat and to meet defined tactical requirements. Contrary to the assertions of the author, no changes in requirements were made during its production. Nor is the complexity of the system any greater than necessary to defend against the threat of sophisticated Soviet aircraft.

"The acquisition of a weapon system by the Department of Defense is a process of weighing and selecting among many alternatives -- from the initial statement of requirements, through the myriad of tradeoffs that take place between capabilities and cost, to operational testing, and finally production. Defense issues warrant serious inquiry and deserve no less. It would be useful to find a national publication that could synthesize, without serious distortion, the complexity of these important issues and articulate them for the American public clearly. And, having read your article on DIVAD, I, like Diogenes, still search."

CASPER W. WEINBERGER
Secretary of Defense

I would sincerely appreciate your printing this letter on your editorial page.

Sincerely,


CHARLES C. ADSIT

Brigadier General, USA
Project Manager, SGT YORK Gun System

DEFENSE WEEK
April 9, 1984

ALLEGATIONS AND ARMY REJOINDERS

Preface: Allegations raised in this article were surfaced over a year ago and dismissed as unfounded. The memorandum to forward these allegations to USDRE was never signed. Further, an OSD review of the PAE position was never requested. On 30 March 1984, however, the DOD IG requested Army support in determining the validity of allegations made by OSD(PAE) as they apply to the DSARC process.

Was DSARC Misled On Sgt. York?

IG Probes 'Faulty' Army Data To DoD

BY MICHAEL DUFFY

The Defense Department Inspector General's Office (IG) is investigating charges that Army managers of the troubled Sgt. York Division Air Defense Gun supplied erroneous information to a key DoD weapons review committee. According to the allegations, DIVAD program managers overstated the lethality and reaction time of the gun by as much as 400 percent, making it appear that the Sgt. York had been developed successfully when, in fact, it has been characterized by inaccurate targeting, rising costs and delivery delays.

4. The Sgt. York gun project to build one of the Army's premier weapons of the 1980s has been run by Army Brig. Gen. Charles Adair since August 1979. The controversy centers on Army assertions made to a May 23, 1982 meeting of the Defense Systems Acquisition Review Committee (DSARC) held to determine if the Sgt. York should be built. After reviewing Army test figures supplied at that meeting, the DSARC approved production of the gun. However, *Defense Week* could not determine if Adair attended the controversial meeting or if he knew beforehand about the Army's presentation.

The DoD investigation, being conducted by IG auditors Jeff Thomas and Steve Tredden, centers on evidence subsequently supplied to members of the DSARC which indicates that the initial test results were overly optimistic, at best. If, in fact, test results of the Sgt. York's performance were inflated, the gun may not be capable of performing its principal mission: the defense of Army tank columns against attacking enemy helicopters. In February, *Defense Week* revealed that the Sgt. York's radar cannot accurately identify targets. The Sgt. York project is to cost \$4.2 billion, of which \$1 billion already has been committed.

Pentagon officials last week confirmed the existence and focus of this new IG probe of the project. One source said, "There are indications that the DSARC had been misled, emerging from an earlier IG audit of the air defense gun. Pentagon sources were careful to note, however, that the IG investigation—which is not yet finished—is at present based on incomplete data. Nonetheless, the information on hand could 'impact upon the credibility of the entire DSARC process,'" one Pentagon official told *Defense Week*. The DSARC typically consists of Richard DeLauer, who is under secretary for research and engineering, the DoD Controller, several assistant defense secretaries and, in this case, Army Secretary John Marsh or his representative. The DSARC regularly assesses each of the Pentagon's major hardware systems. Without the committee's approval, the military services may not begin new weapons projects or transfer them from developmental to production status.

1. The Army definition of reaction time includes the time from detection of an in-range target to firing the first round. OSD(PAE) arbitrarily added the helicopter time of flight from detection range to in-range to their definition of reaction time. The OUSDRE (T&E) agrees with the Army definition. Performance/lethality data used by OSD(PAE) is based on a small subset of tentative test data available in Mar 82, as Check Test data was beginning to be reduced. Even though the data was updated by AMSAA, OSD(PAE) never corrected their earlier analyses derived from the tentative data.

2. System acquires true targets and rejects false targets at the rate and accuracy specified. This has been verified in prototype and production vehicle testing.

3. Program has experienced less than a 3% growth in real costs since start of development.

4. Initial fire unit deliveries were delayed five months due to late component design changes and production start-up problems. These early problems have been resolved.

5. DSARC III was held on 4 May 1982.

The weight of this new IG probe may add to the program's roiling sea of troubles. DIVAD's maker, Ford Aerospace and Communications Corp., has fallen six months behind in deliveries due to "systematic failures" in production and quality control. An Army contracting officer recently described Ford's performance as "totally unacceptable" and threatened to delay a three-year purchase scheduled for May. Over five years, the Army wants to buy 618 copies of the radar-guided anti-aircraft gun mounted atop an M48A5 tank chassis.

Sources who have seen preliminary results of the IG investigation told *Defense Week* that the probe had not ascertained whether DIVAD managers knowingly or unwittingly supplied apparently erroneous data to the DSARC. At the May 23 meeting, the Defense Department officially agreed to buy the first 50 Sgt. York guns for \$370 million.

The charges under study by the IG's office may bring back woeful memories to the Sgt. York managers. Last January, similar allegations were leveled at the DIVAD by Jim Finsterle, director of the land forces division of DoD's Office of Program Analysis and Evaluation. In a January 1983 memo to office director David C. Chu, Finsterle wrote that: "Data released since [the DSARC] shows that several key effectiveness parameters were overstated in the information previously available to either you or Dr. DeLauer or, presumably, to other DSARC members."

Finsterle described DIVAD as "a potential \$4 billion mistake" and suggested that the DSARC members might have been "misled" to elicit a "buy" decision.

Similar questions arose in a Senate Governmental Affairs Committee hearing last June. Sen. William V. Roth (R-Del.) asked the Pentagon's test and evaluation chief, Admiral James Linder, to verify that the Army "provided inadequate and misleading test data to top OSD officials on the DIVAD." Linder replied that he wasn't aware of "inaccuracies." In a written response to whether "any attempt [had] been made to determine who was responsible for supplying the inaccurate data from the Army to the DSARC," Linder replied: "The test results reported in early 1982 were as accurate as preliminary results can be. More thorough analysis by the independent testers led mainly to refinements to statistical data and to more extensive subjective evaluations of these data."

Doubts about the validity of DIVAD test data are a particularly touchy issue because there is so little of it. Rather than perform usual step-by-step developmental tests as DIVAD production proceeds, the Army adopted a speedier "hands-off" acquisition strategy, allowing Ford to complete the assembly of production models before submitting vehicles to battlefield tests. Under its fixed price contract with the Army, Ford must foot the bill for correcting any inadequacies in production models.

Problems with radar integration and quality control surfaced last fall and prevented the Army from taking delivery on the first DIVAD for six months. Unit No. 1 was delivered on March 13; Ford Aerospace delivered a second

6. Statement is unfounded. It is taken from an internal OSD(PAE) memorandum that was never officially signed out of that office.

7. Problems experienced during acceptance testing of the first production vehicle primarily involved system integration and were solvable with software changes. Problems were not unusual for a major weapon system nor show-stopping.

8. Army's contracting officer sent letter to contractor to notify him of the government's intention to exercise a particular option afforded in the contract; i.e., extend the award period for the FY85 contract option. It was also to gain attention of upper management of the Army's dissatisfaction with late hardware deliveries. The contractor has responded with proposals that will satisfy Army requirements.

9. Statement refers to range, reaction time and lethality statement was untrue in January 1983 and even more so today. Tests last summer demonstrated system effectiveness that exceeds stated Army (ROC) requirements.

WHITE PAPERS

DATA-WEN
27 March 1984

SUBJECT: Allegations/Rejoinders Concerning the SGT YORK Air Defense Gun System

<u>Allegation</u>	<u>Source(s)</u>	<u>Rejoinder</u>
1. High cost	Atlantic Monthly (Oct 82)	Program clearly within cost parameters - less than 3% real growth since inception
2. Range insufficient to meet stand-off threat	OSD-PAE (Late 82)	Latest test verifies range well beyond average battlefield visibility anticipated in Europe, and slightly beyond range of Soviet Spiral missile
3. Reaction time too long	OSD-PAE (Late 82)	The system meets required standard.
4. Can't hit maneuvering aircraft - can't shoot straight	Atlantic Monthly (Oct 82) NY Times (7 Mar 84) CBS News (24 Mar 84)	Design Specifications have not only been met, but exceeded for all classes of targets.
5. System ignores target and looks on latrine fans	Defense Week (27 Feb 84) NY Times (7 Mar 84)	Radar meets required specifications. Pulse-doppler radar designed to detect hovering helicopters in ground clutter at extended ranges; radar high sensitivity will detect small high speed objects at very close range; crew can visually confirm absence of threat and electronically blank out return. Fan was never locked on or

SUBJECT: Allegations/Rejoinders Concerning the SGT YORK Air Defense Gun System

<u>Allegation</u>	<u>Source(s)</u>	<u>Rejoinder</u>
6. Radars cannot withstand rough terrain	NY Times (7 Mar 84) NY Times (23 Mar 84)	No rough terrain induced failures have been noted in the radar through intense testing at Aberdeen Proving Ground.
7. Radar emissions will give away unit's position	Atlantic Monthly (Oct 83) NY Times (7 Mar 84)	SGT YORK is one of many emitters on the battlefield. Emission control can be exercised in cases where necessary and still make use of optical system.
8. System has reliability problems	NY Times (23 Mar 84)	Extensive testing of prototype system showed reliability problems.

9. Army critical of contractor performance

Defense Week (19 Mar 84)
Washington Post (22 Mar 84)
NY Times (23 Mar 84)
CBS News (24 Mar 84)

Corrections were identified and incorporated into production hardware. Tests of selected items (e.g., ammunition feed system and controlling computer) have shown satisfactory performance.

Army's contracting officer sent letter to contractor to notify him of the government's intention to exercise a particular option afforded in the contract; i.e., extend award period for FY 84 contract. It was also to gain attention of upper management of the Army's dissatisfaction with late hardware deliveries. ~~The contractor has~~ responded with proposals that will satisfy Army requirements.

10. Allegations/Rejoinders Concerning the SGT YORK Air Defense Gun System

Allegation
10. "Systematic failures" during post production tests delayed acceptance of first fire unit.

Source(s)
Defense Week (27 Feb 84)
Defense Week (19 Mar 84)

Rejoinder
Problems experienced during acceptance testing of first production vehicle primarily involved system integration and were solvable with software changes. Problems were not unusual for a major weapon system nor show-stopping.

11. Program is six months behind schedule

NY Times (23 Mar 84)
CBS News (24 Mar 84)

The first production fire unit was delivered to the Army five months later than original forecast. Program is still years ahead of most major weapons acquisition programs. Paper requirement to production hardware took only six years.

12. Tests were abandoned after prototype system proved to be unacceptable

NY Times (23 Mar 84)

Army did not "abandon" any tests. Testing in CT82 was changed in scope because of prototype fatigue and lack of spare parts. The test was completed with many useful results.

13. Optical Aiming with "Kentucky Windage" is more effective than radar tracking/computer aiming

Atlantic Monthly (Oct 82)

Virtually impossible to hit modern high performance aircraft with this method - hardest thing to do on battlefield is to find the target, especially ~~gun-up helicopters.~~

3-4534
 1. EGT: Allegations/Rejoinders Concerning the SGT YORK Air Defense Gun System

Allegation
 14. Performance requirements/mission profiles have been changed so that SGT YORK could succeed.

Source(s)
 Atlantic Monthly (Oct 83)

Rejoinder
 Not true. One of the Army's most stable requirement documents - not one change since 1976.

UNITED STATES ARMY
THE CHIEF OF STAFF

26 APR 1983

Dear Mr. Chairman:

Media articles have quoted excerpts from my recent testimony before the Defense Subcommittee of the Senate Appropriations Committee regarding Army's SGT YORK Air Defense Gun System being "on the margin." These statements are being quoted out of context and may be obscuring my true viewpoint.

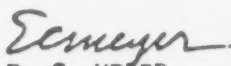
I want to make clear to you my position regarding continued procurement of the SGT YORK system. I believe that the SGT YORK system is urgently needed to replace the VULCAN air defense gun now deployed with the heavy divisions. The SGT YORK system has been designed to accompany the heavy division maneuver forces in the forward battle area, providing air defense protection in order that those forces may survive to fight. I know of no substitute for the SGT YORK.

The urgency of need was so great that the Army embarked on an innovative acquisition strategy for SGT YORK that included "skunk works" development using "off-the-shelf" components, competitive development by two contractors, and concurrency in training and logistics development. That approach worked. The program is on schedule and is within two percent of originally programmed costs. The threat to our forces in the forward area is even greater than originally forecast.

We have committed procurement dollars to the SGT YORK program for three years, funding two production options for a total of 146 systems. Deployment will begin this fall. The FY 84 procurement dollars will fund a third production option of 130 systems.

I strongly recommend continued procurement of the SGT YORK system and request your support.

Sincerely,



E. C. MEYER
General, United States Army
Chief of Staff

SGT YORK AIR DEFENSE GUN SYSTEM RECENT ALLEGATIONS

ALLEGATIONS	ARMY RESPONSE
SYSTEM CAN'T PERFORM ITS MISSION IN AN ELECTRONIC WARFARE ENVIRONMENT	OVERALL CAPABILITY IS EXCELLENT, DUE TO ECCM DESIGN MEASURES INCLUDING FULL OPTICAL BACK-UP TRACKING/FIRING CAPABILITY.
RADAR WILL BE USELESS DUE TO ANTI-RADIATION MISSILE THREAT	SGT YORK RADAR WILL DETECT APPROACH OF ARM, EXECUTE TIMED SHUTDOWN SEQUENCE TO ASSURE HIGH SURVIVABILITY, THEN REENERGIZE TO CONTINUE EFFECTIVE SURVEILLANCE.
A FORWARD-LOOKING INFRARED SEARCH SET WOULD BE BETTER THAN THE RADAR ON THE SGT YORK GUN	FLIR IS LIMITED IN SEARCHING LARGE VOLUMES OF SPACE FOR LONG PERIODS OF TIME. WON'T PROVIDE ADEQUATE REACTION TIME AGAINST HELICOPTER THREAT. SGT YORK RADAR COMPLEMENTS CHAPARRAL/FLIR, STINGER SYSTEMS & COMPLICATES ECM BY THE ENEMY.

SGT YORK AIR DEFENSE GUN SYSTEM RECENT ALLEGATIONS

543

ALLEGATIONS	ARMY RESPONSE
OPTICAL AIMING WITH "KENTUCKY WINDAGE" IS MORE EFFECTIVE THAN RADAR TRACKING/COMPUTER AIMING	IMPOSSIBLE TO HIT MODERN TARGETS WITH THIS METHOD - HARDEST THING TO DO ON BATTLEFIELD IS TO FIND THE TARGET; ESPECIALLY POP-UP HELICOPTER.
M48 CHASSIS HAS INADEQUATE MOBILITY TO SUPPORT THE M1, M2 AND M3 VEHICLES	ALTHOUGH OF LESSER CAPABILITY IN DASH/SPEED, SGT YORK WILL KEEP OTHER VEHICLES WITHIN COVERAGE UNDER TACTICAL CONDITIONS. DOLLAR SAVINGS FROM USING REBUILT CHASSIS.
THE UNIQUE ACQUISITION STRATEGY (SKUNK WORKS, GOV'T HANDS OFF) HAS FAILED	STRATEGY HAS BEEN VERY SUCCESSFUL: STILL FORECASTING IOC IN < 8 YRS FROM DEVELOPMENT START WITH LARGE ESTIMATED COST SAVINGS.
SYSTEM HAS BEEN INADEQUATELY TESTED	SYSTEM HAS BEEN EXTENSIVELY TESTED IN BOTH OPERATIONAL AND DEVELOPMENTAL TESTS. ALL FIRM REQUIREMENTS HAVE BEEN DEMONSTRATED.

SGT YORK AIR DEFENSE GUN SYSTEM RECENT ALLEGATIONS

ALLEGATIONS	ARMY RESPONSE
CAN'T REACH HELICOPTER AT STAND-OFF RANGES	INTELLIGENCE ESTIMATES PLACE HELICOPTERS CONDUCTING ANTI-ARMOR MISSIONS AT RANGES WHERE SGT YORK SYSTEM PROVIDES EXCELLENT COVERAGE.
SGT YORK CAN'T SURVIVE IN THE FORWARD DIVISION AREA	SYSTEM HAS ARMOR PROTECTION ON TURRET EQUIVALENT TO BRADLEY VEHICLE. RADAR ANTENNA MASTS ARE ARMORED, REFLECTORS ARE TOLERANT OF FRAGMENT DAMAGE.
CAN'T HIT MANEUVERING TARGET	CAN HIT & KILL AIRCRAFT FLYING ATTACK & MISSION FLIGHT PROFILES EXPECTED IN THE FORWARD DIVISION AREA.
PERFORMANCE REQUIREMENTS/ MISSION PROFILES HAVE BEEN CHANGED SO THAT SGT YORK COULD SUCCEED	ONE OF ARMY'S MOST STABLE REQUIREMENT DOCUMENTS - NOT ONE CHANGE SINCE 1976

SGT YORK AIR DEFENSE GUN SYSTEM RECENT ALLEGATIONS

ALLEGATIONS	ARMY RESPONSE
SIGNIFICANT COST GROWTH HAS OCCURRED	CURRENT PROGRAM ESTIMATE IS LOWER THAN ORIGINAL DEVELOPMENT ESTIMATE. IN CONSTANT DOLLARS THERE IS ONLY A 3% REAL COST INCREASE. ALL OTHER IS DUE TO INFLATION.
ARMY SHOULD BE BUYING MORE OF A LOWER COST AIR DEFENSE GUN SYSTEM	ARMY HAS CAREFULLY WORKED AT FORCE STRUCTURE. SIMPLER SYSTEMS HAVE INADEQUATE: MOBILITY, SURVIVABILITY (LITTLE OR NO ARMOR), EFFECTIVE RANGE, TARGET ACQUISITION CAPABILITY, REACTION TIME. FURTHERMORE, WHEN MANPOWER REQUIREMENTS ARE CONSIDERED, THIS OPTION MAY BE HIGHER COST.
SYSTEM HAS MANY BELLS AND WHISTLES	EFFECTIVE USE OF COST/PERFORMANCE TRADE-OFFS-FOUR REQUIREMENTS TRADED OFF AT ESTIMATED SAVING OF \$400K PER FIRE UNIT (\$300M PROGRAM COST)

PROBABILITY OF HIT

Senator RUDMAN. And actually I do have one last question that just occurred to me. Looking at some of the Army's test reports on point detonation results vis-a-vis proximity fuse results, there was a gap at one point that was unacceptable, I believe, that you really felt that your point detonation ought to be doing better than it was doing.

Has that improved? Is that something you are going to test at Fort Bliss, at Aberdeen?

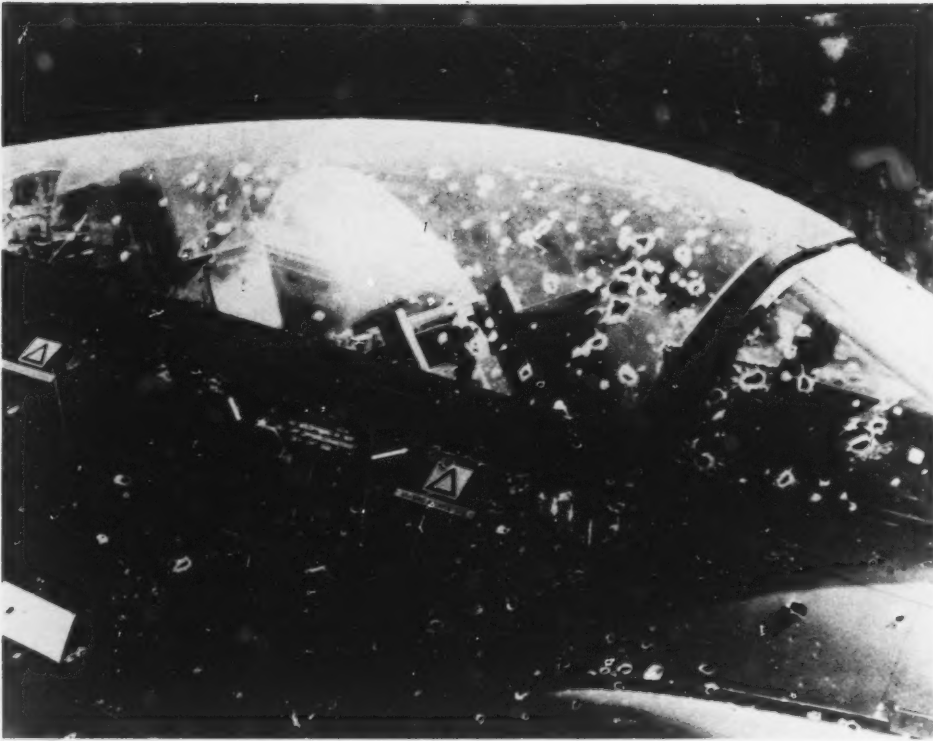
General ADSIT. Sir, I think what you are probably referring to is the probability of being able to hit the target. And when we first started the design of the system we were not sure that there would be what we call a proximity round available to us. So the requirement is stated in terms of probability of being able to hit the target.

At the time we went into the development it so happened that there was a mature proximity round available, so, therefore, the requirement of probability of hit is really overtaken by the fact that you do not have to hit the aircraft. All that the round has to do is pass within a certain distance of the aircraft. The round will explode and is very lethal, as a matter of fact.

And so we are able to kill the target with a proximity round without having to hit it. So what you are referring to——

Senator RUDMAN. So your requirement for point detonation is obviously a lot less now that you have that?

General ADSIT. Yes, sir. I might also enter into the record a picture we have of a proximity round going off and hitting an aircraft.



PICTURE 1

PROXIMITY ROUNDS

Senator RUDMAN. I am not sure we can put that in the record, but we would sure like to have it.

General ADSIT. All right, sir.

Senator RUDMAN. You know, I do a lot of pheasant hunting up in New Hampshire and a lot of duck hunting, and I was always hoping that some of the ammunition companies would come up with a proximity round for my 12-gauge shotgun, but they have not come up with one yet. [Laughter.]

General ADSIT. Sir, we could not get an Army pilot to volunteer for that test, and I will not tell you which service we got the volunteer from.



SLIDE 4

TUNGSTEN FRAGMENTS

General ADSIT. There is an example. When a proximity round goes off, there are tungsten fragments that shower and you can see it makes it very uncomfortable for the pilot. You can see also here it killed the engine and that could kill the pilot. There is a copy of that.



PICTURE 2

EFFECT ON FIXED-WING AIRCRAFT

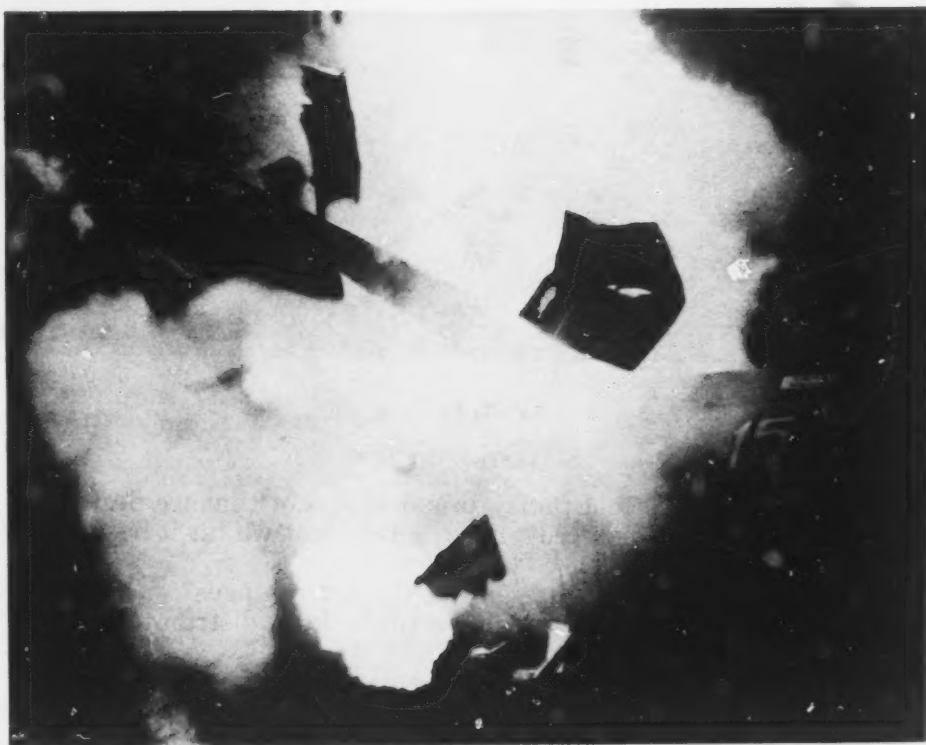
There is a burst on a fixed-wing aircraft.



PICTURE 3

EXPLOSION EFFECT ON HELICOPTER

Here it shows two detonations going off beside the helicopter.



PICTURES 4 AND 5

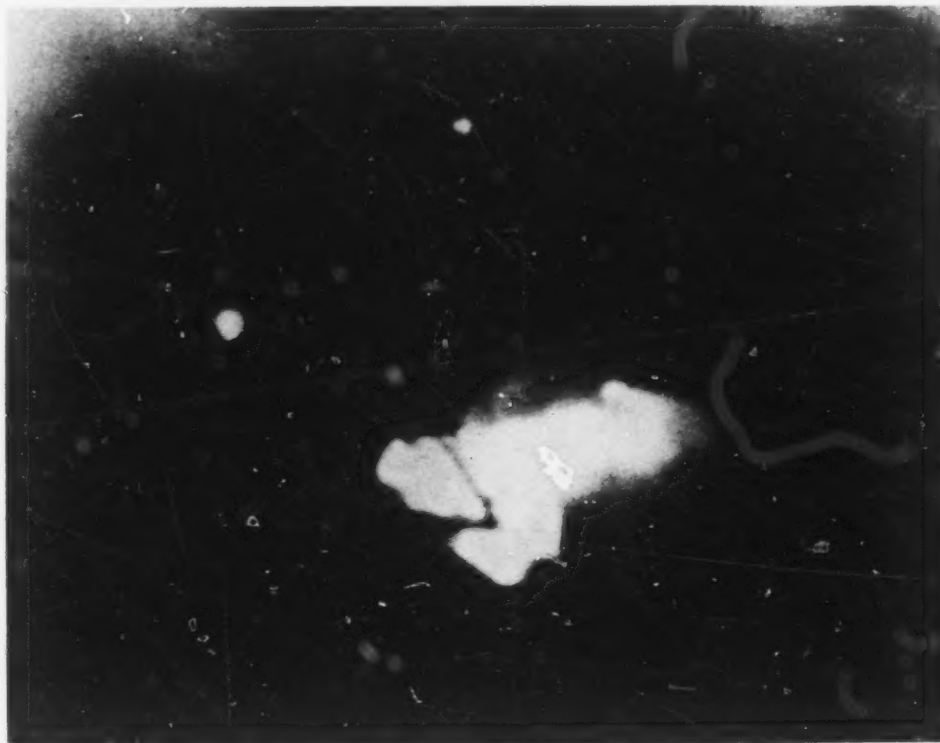
RANGE

Senator RUDMAN. Could you tell us, or is it classified, the range that these tests were operated? Is that classified?

General ADSIT. Yes, sir. [Deleted.]

Senator RUDMAN. Were these surplus units fitted with remote control equipment?

General ADSIT. Yes, sir. They were drone HUEY helicopters that were excess, and we also got some F-86's that were droned and used them. In addition, we got some surplus targets from the Navy and what this is is really a gasoline drum with a blade on top of it.



PICTURE 6

SMALL-TARGET HIT

And the reason we feel pretty proud of it, not that we destroyed it because it is easy to destroy, but the fact that we hit it because it is such a small object.

Senator RUDMAN. There are also at the same ranges?

General ADSIT. Yes, sir. We have made kills distributed across the range envelope that we have.

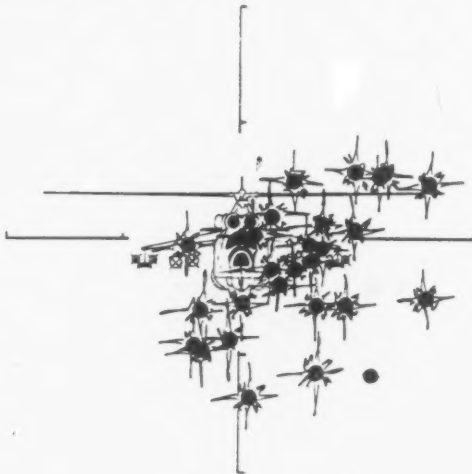
Senator RUDMAN. So the committee can have these photographs for our files?

General ADSIT. Yes, sir.

Sir, if I may make reference to, without name, to a fellow Senator that came down to Fort Bliss, we gave him about a minute and

a half of instructions on the system, and I want to show you how—this is only one of the shots.

Take the range off. Just put your thumb over the range. Just hold your finger over it.



GUNNER: GOLDWATER
MISSION: 8019-1-4
DATE: 5-26-83

SLIDE 5

SHOT PATTERN

What you will see here, sir, is what we were shooting at was in fact that little drum that I showed you. So pictorially what we have done is we have superimposed a Hind helicopter over there and we have a radar that measures where every round goes. You can tell where the round goes in the air. And this represents the rounds going off and any one of these rounds could, not necessarily would but could, kill the aircraft.

And you can see that we have got a number of rounds on there. For a target of this type we might shoot 30 rounds, and if it was really a tough target we might shoot 60 rounds. Now to me that seems like it is a pretty good bargain because, you know, a round is, let us say, \$200 a round, and you shot 30 of them—\$6,000 to kill an \$18 million aircraft or something like that.

Let me look at the number here. That shot was not at maximum range, but at about, I would say, something like two-thirds of the range—that particular shot.

We have some others like this in which we did the extended range testing that I told you about and we can display this same sort of thing for out to those maximum ranges, and I would be glad to submit some of those to you also. We would have to do it in classified form.

CONTRACTOR LIABILITIES

Senator RUDMAN. That is very good, General Adsit. I just have a question that has really been raised by what you said in terms of the warranty.

If you found some problems in your 1985-86 operational testing—and I am looking at the length of the buy—if you discovered some problems during that 1985-86 operational testing, would the contractor pay for those?

General ADSIT. I think the answer to that is that if they were workmanship problems in which the quality coming out of the factory was not good, he would pay for those. We hope that by going through that initial production test—so the answer is “yes.”

I just thought of the answer, and the reason is because out of very fiscal year we pull off some fire units and conduct that test. So the answer is “yes.”

Senator RUDMAN. That is a very good presentation. We are going to, of course, be watching it very carefully. I would assume the Army would be watching it even more carefully. It is your necks.

General ADSIT. Sir, I get a lot of attention.

WARRANTIES IN GENERAL

Senator RUDMAN. General Kenyon, you wanted to make a comment about warranties generally. Why don't you do that and then we will go on to some general questions on some other subjects?

General KENYON. Yes, sir. Just to follow up on the original question, sir, on warranties. Warranties are not new for the Army and in fact a recent survey that we have done we can show 470 warranties in effect on systems or given end items. Some of them are not significantly large systems; some of them are.

Some of the best examples for military application but which are very analogous to commercial practice, as I understand Senator Andrews has referred to before, is a warranty like we have on the engine in the Bradley Fighting Vehicle, which is 1 year/unlimited mileage. You are familiar with a large acquisition of vehicles all the way from the 5¼-ton on up through 10-ton, and typically in all of those vehicles we get what we call the passthrough warranty which is typical of commercial vehicles normally, 12 months/12,000 miles.

There are some more specific which look for us to be able to ensure that a storage period or a shelf life does not let an item deteriorate, and we have a significant warranty on the M-60A3 thermal sights which we have in a multiyear program. So that we have them in many cases.

We have not yet started to see the impacts of the legislation last year. DARCOM is working with that, looking at that and applying that in all of their applicable programs. For instance, one that comes to mind is the Mobile Subscriber Equipment which will be nondevelopmental type hardware and we will attempt to get a full warranty on that.

Another one of interest to this committee, perhaps, is one which we achieved last year where in the just-signed-up contract for the AGT-1500 engine that goes in the M-1 tank program we have a 1-year, without caveat, warranty on that engine now.

We do have some concerns. For instance, when you take the commercial vehicles to a location like Fort Hood and you go to the commercial automotive dealer, with all the problems that you have to service a warranty, if you had a problem which moved across most of your vehicles you could saturate that area very quickly with that dealer doing warranty work. So we are looking at that.

And another aspect might be those items—and you brought up a couple in your questioning—which have high technological content where it might not be to the advantage of either in the cost required to implement a warranty, in that the contractor is allowed to have people, programs and so forth to enforce those or, from the military standpoint, what would be achieved.

But warranties are not new to us, sir, and we are looking at those very carefully.

GENERAL WARRANTY

Senator RUDMAN. I think before we leave the warranty issue, will you get a copy of the general warranty that you have that you have been referring to up to the committee for the record sometime in the next week or so? We would like to take a look at it.

General ADSIT. Yes, sir.

[The information follows:]

DIVAD

The portion of the DIVAD contract concerning warranty/correction of deficiencies is provided.

H.5 CORRECTION OF DEFICIENCIES

H.5.1 Definitions: As used in this clause:

H.5.1.1 "Deficiency" means any condition or characteristic in any supplies (which term shall include related technical data) or services furnished hereunder, which is not in compliance with the requirements of this contract. "Deficiency" also means any condition or characteristic in any supplies furnished hereunder (including, but not limited to, spare parts, Peculiar Support Equipment (PSE), spare parts for PSE, training equipment and related technical data) which may be in compliance with the particular contract specifications for such individual supplies at the time furnished to the Government but which must be altered, re-designed, reconfigured or reworked because of other gun system deficiencies to assure that the integrated gun system will meet all of the requirements of this contract.

H.5.1.2 "Correction" means any and all actions necessary to eliminate any and all deficiencies;

H.5.1.3. "Acceptance" of supplies and services means the execution of a DD Form 250 or similar document by the Government for the supplies or services, or portions thereof, furnished under this contract.

H.5.2 General

H.5.2.1 The rights and remedies of the Government provided in this clause:

H.5.2.1.1 Shall not be affected in any way by any other provision under this contract concerning the conclusiveness of inspection and acceptance; and

H.5.2.1.2 Are in addition to and do not limit any rights afforded to the Government by any other clause of this contract.

H.5.2.2 This clause shall apply as follows:

H.5.2.2.1 Design and/or integration deficiencies in delivered or undelivered items, discovered by either the Government or the contractor through 180 days after completion of Physical Configuration Audit of production hardware.

H.5.2.2.2 To all deficiencies, excluding design and integration deficiencies, discovered by either the Government or the contractor within 180 days after acceptance of the respective supplies by the Government.

H.5.2.3 The contractor shall not be responsible under this clause for the correction of deficiencies caused by the Government, except that in no event will any inspections, acceptances, approvals, concurrences, authorizations, reviews or coordinations by the Government be construed to relieve the contractor of its obligation under this clause.

H.5.2.4 The contractor shall not be responsible under this clause for the correction of deficiencies in Government-furnished property, except for deficiencies caused by integration and except for GFP which is modified by the contractor in any way other than normal maintenance and replacement of parts pursuant to its obligations under the applicable Government property clause hereunder.

H.5.3 Deficiencies in Accepted Supplies or Services

H.5.3.1 Notice to Contractor; His Recommendation for Correction. If the Contracting Officer determines that a deficiency exists in any of the supplies or services accepted by the Government under this contract, he shall promptly notify the contractor of the deficiency, in writing within 20 days after such determination. Upon timely notification of the existence of such a deficiency, or if the contractor independently discovers a deficiency in accepted supplies or services, the contractor shall promptly submit to the Contracting Officer his recommendation for corrective actions, together with supporting information in sufficient detail for the Contracting Officer to determine what corrective action, if any, shall be undertaken.

H.5.3.2 Direction to Contractor Concerning Correction of Deficiencies. Within 20 days after receipt of the Contractor's recommendation for corrective action and adequate supporting information, the Contracting Officer, at his sole discretion, shall give the contractor written notice not to correct any deficiency, or to correct or partially correct any deficiency within a reasonable time and at contractor's plant, unless a Government facility is established as an alternate location by mutual agreement by the contracting parties.

H.5.3.3 Correction of Deficiencies by Contractor; The contractor shall promptly comply with any timely written direction by the Contracting Officer to correct or partially correct a deficiency, at no increase in the contract target and ceiling amounts. The contractor shall also prepare and furnish to the Government data and reports applicable to any correction required under this clause (including revision and updating of all other affected data called for under this contract) at no increase in the contract target and ceiling amounts.

H.5.3.4 Modification of Contract With Respect to Uncorrected Deficiencies. In the event of timely notice of a decision not to correct or only to partially correct, the contractor shall promptly submit a technical and cost proposal to amend the contract to permit acceptance of the affected supplies or services in accordance with the revised requirements, and an equitable reduction in contract target and ceiling amounts shall promptly be negotiated by the parties and reflected in a supplemental agreement to this contract.

H.5.4 Deficiencies in Supplies or Services Not Yet Accepted. If the contractor becomes aware at any time before acceptance by the Government (whether before or after tender to the Government) that a deficiency exists in any supplies or services, he shall promptly correct the deficiency or, if he elects to involve the procedures in paragraph H.5.3 he shall promptly communicate information concerning the deficiency to the Contracting Officer in writing, together with his detailed recommendation for corrective action.

H.5.5 No Extension in Time for Performance, No Increase in Contract Targets or Ceiling Amounts.

H.5.5.1 In no event shall the Government be responsible for extension or delays in the scheduled deliveries or periods of performance under this contract as a result of the contractor's obligations to correct deficiencies, nor shall there be any adjustment of the delivery schedule or period of performance as a result of such correction of deficiencies, except as may be agreed to by the Government in a supplemental agreement with adequate consideration.

H.5.5.2 It is hereby specifically recognized and agreed by the parties hereto that this clause shall not be construed as obligating the Government to increase the contract target or ceiling amounts of this contract.

H.5.5.3 All costs incurred or estimated to be incurred by the contractor in complying with this clause shall be considered when negotiating the total final price under the Incentive Price Revision clause of this contract. After establishment of the total final price, contractor compliance with this clause shall be at no increase in the total final price. Any equitable adjustment made pursuant to paragraph H.5.3 of this clause shall be governed by the paragraph entitled "Equitable Adjustments Under Other Clauses" in the Incentive Price Revision clause of this contract.

ARMY ACHIEVEMENTS WITH WARRANTIES

Senator RUDMAN. It sounds to me like it is a reasonable warranty under the circumstances, and I would like to take a look at it because we are having some problems in that DOD has not been, I think nearly as cooperative as the services themselves on the warranty. DOD has some problems up in the General Counsel's office that are really rather obscure to me.

So I would like to see just what you have done at the Army level with this program, and if there was ever a program that we are glad to hear you have got some protection on, it is this one, and I think that makes some people feel a little bit better about the program.

LHX HELICOPTER

Let us go on the the LHX helicopter. You have a very significant R&D initiative in this budget. That program is approaching \$3 billion in R&D alone. You are requesting \$75 million for aircraft and engine R&D in fiscal year 1985, submitted \$26 million in reprogramming to accelerate the IOC by 2 years.

I guess I have two questions. What is the requirement for an fiscal year 1992 IOC for that program and what is the urgent requirement that has caused you to put this emphasis on this?

General KENYON. That is a good question, sir. If I might, and I will not take a long time to do this, but I would like to use a couple of visuals that we have with us today.

Senator RUDMAN. I have until about noontime today, General Kenyon, so we can get through as many of these as we can and beyond that we will submit them for the record.

LHX WHAT?
WHY?
HOW?

THE ARMY'S PLAN
TO REPLACE
7000+
AGEING LIGHT HELICOPTERS

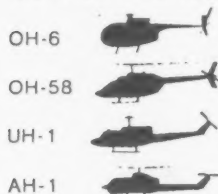
LHX PROGRAM

General KENYON. There is the problem that we are trying to solve with the LHX program.

WHAT IS LHX?

- A MODERN REPLACEMENT FOR THE CURRENT LIGHT HELICOPTER FORCE

CURRENT FORCE



TO BE
REPLACED
AFTER
30 YEARS
SERVICE
BY ...

PROJECTED FORCE

LHX
FAMILY

- AN AFFORDABLE LIGHT HELICOPTER FOR MISSIONS NOT REQUIRING LARGER { BLACKHAWK
APACHE



LHX
8000 LB CLASS

SLIDE 7

CATEGORIES OF AIRCRAFT

General KENYON. It addresses, as shown on this second slide—and you cannot see that too well—but in the middle lefthand side it addresses basically three families, categories of aircraft which your staff and you know clearly depict Vietnam vintage helicopters—the OH-6, OH-58, procured in the early 1960's last procurement, 1964; UH-1—approximately 3,500 aircraft in our fleet today, with an average life coming up on 16, 17 years at this point, where the nominal life of a rotor craft, though I cannot give you good statistical data because they have not been around long enough, is nominally 20 years.

And then the AH-1 Cobra, which was a derivative of the UH-1. And I add those all together and that is about 7,000 aircraft in our fleet today procured to meet the requirements and needs of the Vietnam combat.

LHX DEVELOPMENTAL GOALS

- | | |
|--|--|
| • GROSS WEIGHT -
6,000 - 8,000 LBS | • 30-40% FLEET ANNUAL
O&S COSTS REDUCTION |
| • UNIT FLYAWAY COST
(FY 84)-
UTILITY \$3-4 M
ATTACK \$5-6 M | - MAINTENANCE
MANHOURS PER
FLIGHT HOUR - 50% |
| • SIGNIFICANT
SURVIVABILITY
ENHANCEMENT | - SPARE AND REPAIR
PARTS LINE ITEMS
- 50% |
| | - 40% FEWER MAINT-
ENANCE PERSONNEL |
| | • SINGLE PILOT |

**DEMONSTRATE AN EFFECTIVE & EFFICIENT
LIGHT FLEET REPLACEMENT ALTERNATIVE**

SLIDE 8

WEIGHT OF AIRCRAFT

General KENYON. We intend to take that nonhomogeneous fleet and try to replace it with a family to gain some of the benefits that Dr. Sculley talked about by having a system where we are accentuating the factors that I show here. In an aircraft system weight is very closely related to the cost of the system. We want to keep the weight down.

The costs you can see there are not at the same level as Black Hawk and Apache, and we are not looking to have a vehicle to replace them or to duplicate the capabilities and the requirements that we have in those systems.

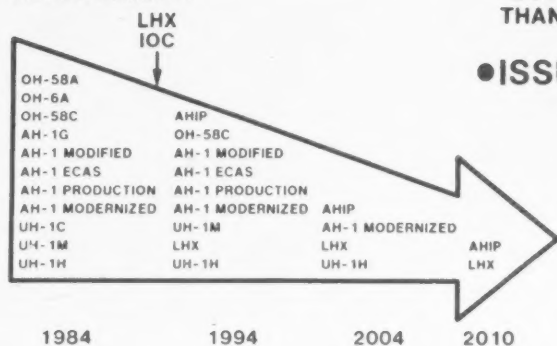
On the righthand side, some 75 percent of the total cost of ownership of a rotor craft comes after you buy it in the 20 years that you use it. So we are trying to do the things that we show there and operate it with a single pilot.

LHX BACKDROP

● 7,000

COMBAT MISSION ESSENTIAL
ARMY HELICOPTERS REQUIRE
REPLACEMENT!

● LARGEST SHARE OF ATTACK
& UTILITY FLEET PERFORMING
MISSIONS LESS RIGOROUS,
"BUT NOT LESS ESSENTIAL,"
THAN BLACKHAWK & APACHE



● ISSUES

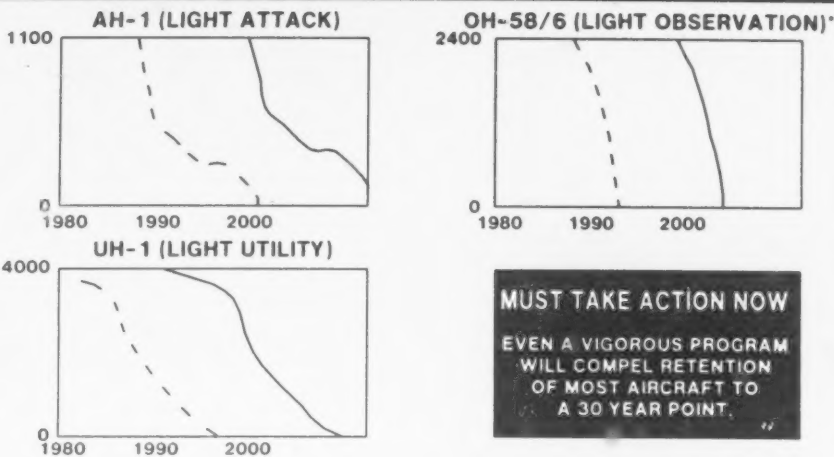
- SERVICE LIFE
- CATEGORIES
- COMBAT CAPABILITY
- O&S COST
- SURVIVABILITY

SLIDE 9

HELICOPTER COMMON FLEET

General KENYON. In doing that we would hope to take a fleet of Army helicopters, showing at the lefthand side of that arrow, a large number of types and models of helicopters, and when we turn the century distill that down into a very common fleet, which has a major impact on logistical support.

LHX SERVICE LIFE



* 578 OH-58 WILL BE MODIFIED TO AHIP AS A NEAR-TERM COMPANION FOR AH-64.

SLIDE 10

LIFE PROFILES OF HELICOPTERS

General KENYON. This kind of gets to the bottomline of the answer to your question. There are the current life profiles or age profiles of those aircraft I am showing. The dashed line on the left shows the 20-year lifeline of each of those systems, and the solid line on the right the 30-year lifeline, so that you can see that most of those 7,000 helicopters will be approaching 30 years of life at the time we say that we need to start to replace them with the LHX.

In recognition of that, of course, you all have also seen the Army backing off of some other programs which we have talked to you about before—for instance Cobra 2000, a program that we were talking about to significantly enhance the capability of the Cobra, at a cost of about \$1.2 billion; a service life extension program on the UH-1 fleet that was about \$3 billion.

We have backed off of major service life extension and we are going in the LHX direction so we can have a much more, I will not say capable, but a much more modern system to field in the year 2000.

FAMILY OF ONE DESIGN

Senator RUDMAN. Well, if I understand your answer, in terms of what we are doing here you are talking essentially of developing a technology, a design, a design principle and then having a family that will involve various uses for cargo, for tactical use, for fire support, for troop carrying, but it would be part, if you will, of a family of one design principle.

General KENYON. Yes, sir. Basically, hopefully two, possibly three configurations, folded around a common dynamic system—

engine, transmission, rotor system, and so forth—so we can keep commonality there.

We look, of course, for one version to resupply troops smaller than the Black Hawk, carrying, we are hoping, six troops in high, hot conditions, and then the attack, armed reconnaissance or scout version. We do not know if that will look the same or not in that we have not completed initial design.

Senator RUDMAN. Well, you are talking about full-scale development in 1986, which is 2 years from now. You are talking flight testing, you know, in 1988. That is what the justification indicated.

General KENYON. Yes, sir.

Senator RUDMAN. I do not believe you have actually picked the technology yet. You have not finalized it. I mean, is that a realistic number? I am looking now at my experience with the Air Force and their aircraft development with the Navy that we hear a lot of testimony here. Is that realistic?

Assuming that is something we want to do, do we want to fund it? Can you possibly meet that kind of a schedule?

General KENYON. Sir, we can do it if we will go to industry and we will let industry do what they are capable of and not tell them how to dot every "i" and cross every "t". We would like to adopt a strategy somewhat similar to the early F-16 program. We have looked at that very carefully.

There is correlation between it and some of the parameters related to the early portions of the DIVAD program, but we are not starting from scratch. For instance, you have seen pictures recently of an item called the all-composite aircraft, built by Sikorsky and Bell. Well, we are looking for high composite content. Those two manufacturers have an Army-sponsored program. Hughes is doing work on their own, as is Boeing-Virtol.

We have what is called the ARTI, advanced rotor craft technology integrator program, which you are familiar with, and we had funding requests last year and got some funding, which is the nerve center or the focal point of the program, where we look for the integration of display and sensor technologies to enable us to do the missions with one pilot. We are correlating that work with the Air Force.

ADVANCED TECHNOLOGY DEMONSTRATOR ENGINE

So these are examples. Excuse me. Let me cover one more which is the advanced technology demonstrator engine about to finish up. We have some 800 hours each on two models of engines in industry which we think in addition to letting other elements of industry compete can give us a modern, lighter-weight, lower specific fuel consumption engine.

So the contractors are doing technological work in this area that we think will fit within the bounds we are talking about, but we have got to go to them, give them general requirements and parameters, and let them perform in order to make it realistic.

ADVANCED COMPOSITE AIRCRAFT PROGRAM

Senator RUDMAN. And by looking at the composites and the new engine technologies, I looked at your weight on your previous

slides, you are essentially going to end up with a helicopter that its empty weight is lighter than what you are currently using but the useful loads are going to be equal to or greater than?

General KENYON. Yes, sir. For the advanced composite aircraft program we have demonstrated some 20-percent weight reduction in a helicopter between current capability, current generation helicopters and that composite aircraft type of thing. You can also, as I talked about, with that engine with lower specific fuel consumption you do not have to carry as much fuel to go as far.

Rotor programs which make rotors more efficient, these factors we think we can fit it in those packages.

Senator RUDMAN. Are these the helicopters that are being worked on now with the carbon fiber technology and things of that sort?

General KENYON. Yes, sir.

M-1 TANK PROGRAM

Senator RUDMAN. Let us go on to the M-1 tank program, Dr. Sculley. The Army, as we look at it, will require less than 3 months of production to complete the M-1 program at the end of the current 5-year program, if it is executed as planned at the current level with no changes.

What are the Army's plans for that production line after the 1990's? Maybe General Kenyon would like to answer that.

General KENYON. Sir, as you know, we are transitioning in fiscal year 1984 on that line from the M-1 to the M-1E1, dependent upon a decision that we are about to make shortly. We are currently looking at that future in that we feel we have to have an armored vehicle to follow the M-1 tank.

We are putting together a high level study group, task force, pulling a general officer back from Europe to head it at Fort Knox shortly, in order to define the vehicle generically which follows the M-1 tank.

Senator RUDMAN. When you say an armored vehicle, what class of armed vehicle are you talking about? Are you talking about another tank? Are you talking about a light tank, high-mobility vehicle? Or do you not really know at this point?

General KENYON. Sir, we would call it a tank, but we look generally that it would be lighter, more effective, and have significant technological differences from what we have today. And, if I may, I would let General Wagner comment on that in a minute.

But to answer your question of what we are going to do with the M-1 line, the end of that line in use currently is indefinite and we are looking at that as we build our next program, the fiscal year 1986-90 POM. If we can produce a vehicle to take the place of the M-1 in that timeframe, which is very questionable, we would see that line tapering off and the discontinuance of Army procurement of the M-1 off of that line.

Senator RUDMAN. Well, in light of the need to keep a warm production base of that type do you think it is wise for the Congress to keep increasing your budget requests of 720 tanks a year? I put you between a rock and a hard place, General Kenyon.

General KENYON. Sir, that acceleration would cause us to reach our procurement quantities of the M-1 earlier and then would not provide the linkage that we desire to have from a warm base standpoint to the next generation.

Mr. SCULLEY. Mr. Chairman, I might also add that in providing those extra quantities I would remind everyone that it was not without pain that we arrived at the 720 quantity in what we feel is a balanced program submitted to the Congress.

APPLIQUE ARMOR PROGRAM

Senator RUDMAN. Let me stay right with the whole tank question for a moment. In light of the retention in the active Army and the Reserves, the Congress directed the Army to undertake initiation of the applique armor program, to look at it in the terms of the M-60A3 survivability and also upgrading their sighting systems, their targeting systems and so forth.

We have, if I recall, in excess of 10,000 of those tanks, about 50 percent of the force. What are you doing in that area? I have had an interest in that, as you know.

General KENYON. Sir, we have got several ongoing programs in that area, of course. The basic program is the conversion of the M-60A1 to the A3 configuration. Beyond that we look primarily to new programs that you are familiar with. [Deleted.]

Second, we are looking at protecting crew members using the fire control devices against potential laser damage to their eyesight. We are upgrading the fire suppression system in two phases with halogen systems and we are also looking at the NBC cooling system like that going into the M-1E1 tank.

And then lastly one that you mentioned, one that research and development started in 1983, and we would hope to have production capability to use applique armor in [deleted].

Senator RUDMAN. Well, it would seem that, you know, in terms of making our dollars go the greatest distance they can that that is a very capable tank. It is obviously not as capable as the M-1, but in terms of that tank with enhanced armor capability, with the new gun, and particularly with the new targeting systems and sighting systems and night systems that have been put on some of them, I believe, that becomes a very effective piece of equipment.

When you consider we only produce 720 M-1's a year and convert a lot of those, as I recall the cost of the conversion that you are doing is really not excessive. As I recall, it was in the several hundred thousand dollar range.

General KENYON. Yes, sir.

M-1 TANK ENGINE SECOND SOURCE

Senator RUDMAN. Let us talk about the M-1 tank engine second source. In response to direction from this committee, Dr. DeLauer recently testified to the House committee—we are still waiting for an official response—that the Secretary of Defense determined the establishment of a second source was in the national interest.

Dr. DeLauer also suggested several changes to the Army's multiyear, dual source strategy. What direction has DOD given the

Army and what is the Army planning to do in this area in 1984 and 1985?

General KENYON. Sir, we have not received any direction from the Secretary of Defense's office at this point in time. We feel that after Dr. DeLauer's testimony which established the OSD position as a year-by-year competitive program which differed from the Army's recommendation of a multiyear competitive program that we, the Department of Defense, now must await any further instructions from Congress in that we have been prohibited from pursuing second sourcing the engine, I believe, in fiscal year 1984 language.

So at this point—

Senator RUDMAN. Let me just stop you right there now. All right. You are correct, General Kenyon. We had a terrific battle about that, but I guess we ended up by at least opening up the door. I, for one, think that it is very irresponsible for this Congress to bring you people up here and beat on you to compete and all of a sudden mandate you not to compete for whatever reason. So that is why that language, at the insistence of this committee, was placed in the bill, and we are very anxious to see some response to that.

General KENYON. Sir, we would desire to execute a competitive program. We have seen significant changes in Avco in the engines since I testified before you last year. However, in our minds a great many of those benefits were because of the threat of competition. They are now 40 engines ahead of delivery schedule and they are getting greater than 80 percent acceptance first time, and so forth, the warranty I spoke of, those derived a great deal, we feel, from a competitive environment that existed at that time, and we think that it could be sustained.

Senator RUDMAN. I do not think there is any question about that. I think probably the greatest incentive to that kind of performance is when people recognize that if they do not do it they may lose their jobs. I mean, that is a very, very good incentive. It has worked very well in the private sector, and the more it works in military procurement the better product we are going to get—more reliability at lower cost. So that is why many of us here, you know, really push competition wherever possible.

OPERATIONAL COSTS

Let me turn to operations costs. Over the past few years there have been growing signs that the operational costs of the Army's new weapons well might be considerably higher than the older systems, not surprisingly, I guess, considering how they are constructed and what they require.

The fiscal year 1985 request includes over \$2 billion, an increase of about \$500 million, to field and sustain new weapons systems. In addition to increased quantities of these new systems, the average unit operating cost is also on the rise. Other than the obvious reasons of the high cost of maintaining the technology, why are the new systems so much more expensive to operate than the older equipment? Or maybe you do not agree with that assumption.

General KENYON. Sir, let me start on that and then I guess I would ask General DeMoss to comment on that.

Senator RUDMAN. Let me give you a specific and then maybe it will be easier to answer the question rather than in the abstract.

M-1/M-60 OPERATING COSTS

Last year we discussed the M-1 tank operating costs compared to the M-60 series. The Army's current plans call for about twice the maintenance man-hours for the M-1 tank. The Army is still arguing that the M-1 is only marginally more expensive. I would like you to confront that because that just does not make sense. It appears to this committee that it is more than moderately more expensive to operate.

General KENYON. Sir, it is more to the point that in the past year we have taken what we consider to be a significant initiative in just the operating cost of the tank itself—driving it to the ranges and so forth—that we now are introducing and will soon be testing and installing on all M-1's—an auxiliary power unit, quite low in cost, which would not require the main engine to be running when the tank is stationary on a range, and so forth.

And we feel that those auxiliary power units will more than pay for themselves in less than a year.

AUXILIARY POWER UNIT

Senator RUDMAN. This will be an APU that will be mounted right within the tank itself?

General KENYON. Yes. It is on the right rear fender.

Senator RUDMAN. Also operated by the same type of fuel?

General KENYON. Yes, sir, common fuel.

Senator RUDMAN. It is a small turbine, is it?

General KENYON. Yes, sir.

Senator RUDMAN. What kind of an engine is it?

General WAGNER. Probably a diesel, sir—a small diesel. We have tested turbine engines. In fact, the first requirement for the M-1 tank called for an APU. At that time it was to be an APU for wartime use as well as peacetime use and would be under armor.

Senator RUDMAN. Would you identify yourself for the stenographer?

General WAGNER. Yes, sir. I am General Wagner from the Office of the DCSOPS.

Mr. SCULLEY. I might also add that General Wagner is the former commander of the armor center at Fort Knox prior to his current position.

General WAGNER. The reason we did not put that APU on at the time was because it displaced more fuel than we expected it would, and as a result on a given day we could go a lesser number of miles using the APU than we could without it, and it cost over \$25,000 a copy. So it did not make much sense to us.

What we are looking at now is a cheap, off-the-shelf APU that we can use in peacetime. We will leave it on in wartime, but if we lose it it will not affect the operation of the tank and we can go on.

Senator RUDMAN. The theory being that by not running the turbine when the tank is in its stationary training modes that you will be extending its life?

General WAGNER. It is not only extending the life as much, sir, which it does; but a turbine is inefficient when it is idling as compared to other engines, so we are using more fuel than we would, for example, with a diesel. When a turbine engine gets up to operating speed it is much more efficient, and we feel we can save a lot of money because when you are out on training exercises probably 20 percent or more of the time your engine is cranked up you are not moving.

Senator RUDMAN. Do you have some of these already on M-1's, do you?

General WAGNER. We do not now, sir, but we are going out on RFP and by the end of the year we should have them and will be testing them at Fort Knox.

Senator RUDMAN. What is the power of these diesels? Is it a very small diesel?

General WAGNER. I believe it will be approximately a 5KW output.

Senator RUDMAN. Which is sufficient to operate all the turret equipment?

General WAGNER. Yes, sir. It will operate all the turret equipment and the other electronics, and will keep the batteries charged.

MODULIZED ENGINE

General DeMOSS. Another thing we are doing, sir, is we have modularized the engine.

Senator RUDMAN. If you could identify yourself also for the record. I know who you are, General.

General DeMOSS. General DeMOSS, sir.

Another thing we have done is we have modularized the engine to cut down the engine overhaul costs by replacing modules. This also cuts down your transportation costs because you are not moving major components around to the degree that you are moving just the smaller modules.

You are right. The O&M costs for the Army are rising. This is self-evident by the charts that were provided to Congress in the budget book. But I think that we have also got to take into account, when we are talking about depot maintenance and overhaul, that we are at the same time doing the M-60A1 to A3 conversions to optimize that system's capability for those lower priority units that are not going to get the M-1, both in the Guard and the Reserve and the Active Force structure. The M-113 and other systems that are being replaced in the heavy divisions, forward-deployed forces, and in POMCUS will then be retrofitted and redistributed within the active force structure.

So I think that, you know, those costs are there, but the real term readiness is achieved by the secondary item repair.

SIMULATORS

General WAGNER. Sir, there is one other item we are looking at very carefully that we have not had in the past for all of our weapons systems—and a tank is an example of that. It is the use of simulators. In the past we never had a tank gunnery simulator other

than using subcaliber ammunition, which is a poor simulator at best. Today we are coming up with a simulator with which we believe we can do a lot of our training. We are going to reduce training ammunition.

Ammunition is a big cost driver today. For example, a round of training SABOT—that is, your discarding SABOT ammunition—for training, costs more than a round for wartime use because it is a very sophisticated round that is built to have a limited range, gives you accuracy at 3,000 meters, and drops off at 8,000 meters. Those cost up to \$1,000 a copy. We cannot afford that so we are going to simulation instead of paying those costs.

Senator RUDMAN. There is no question that the Air Force and the Navy have now proven beyond any doubt when you look at training costs that with simulation in the aircraft there is no reason you cannot do it with tanks whatsoever. Of course, the Army, you know, has for years really used a form of simulation going way back into the 1950's when you used your subcaliber ranges and so forth, which is really another way to get to simulation. But this electronically is much better.

General WAGNER. We did that. We found out when we fired on subcaliber ranges that it teaches you manipulation, but you do not learn what you should about firing the main gun. That is why we need the better simulators that we can get today with computer graphics, and so forth.

Senator RUDMAN. I mean, with all the kids with Apple computers at home learning that, they are playing war games every night, probably more realistically than you have got down at Fort Sill.

General WAGNER. I was at Fort Knox, sir. In fact, we are putting those in our day rooms. We actually have come up with simulators made by Atari for us that simulates the fire control of our Bradley vehicles and our tanks so they can practice that in the day rooms.

Senator RUDMAN. That will be the lead story in tomorrow's press reports on this hearing. That makes good sense. The simulation equipment is very good. It is very interesting to use. It is relatively inexpensive and it is reliable. I am glad to hear you are doing that.

LIGHT DIVISIONS

Let us move on here in the time we have. I want to talk about the light divisions just for a moment. I support those completely. I think the Army is moving very much in the right direction, but one of the questions that arises is whether or not the creation of another division, this time a light one, is going to magnify your hard-to-fill combat arms shortages in terms of personnel.

I do not know who wants to answer that question. General Kenyon, anybody that you would like?

Mr. SCULLEY. I think that is best answered from the operations and plans community, and that is the community General Wagner represents, Mr. Chairman.

Senator RUDMAN. General Wagner, why don't you come up and sit down at the table since you are probably going to have to answer some of these questions coming up?

General WAGNER. Sir, we have looked at equipment in the light division and found that a majority of the required equipment is in

the inventory today or being procured. There is not a single item of equipment that we are looking at that will go into the light division that we would not put in other light divisions or in our heavy divisions.

For example, the principal vehicle that it is equipped with is going to be the High Mobility, Multipurpose Wheeled Vehicle. The standard rifle, the M-16A2, which is the improved version of the A-1 that we are buying for the rest of our Army, is going into it. It will have a large number of night vision items so that every soldier in the division that is a fighter will be equipped with some sort of night vision device, not new, however.

The only item we are looking at along that line is to develop for our entire Army a much cheaper version of the individual weapon sight. We pay \$5,000 to \$7,000 for the individual soldier today to have that. We want to get that down to \$1,500 or less.

We are not coming in and saying we need new systems to outfit this division. It will have an austere operating base. When we put it into an area of higher intensity warfare we will have to reinforce it with other units, but these will be standard type units that we have in our inventory today—air defense, artillery, armor, and units of that nature.

EQUIPMENT IN LIGHT DIVISIONS

Senator RUDMAN. What is the heaviest piece of equipment that is in the light division?

General WAGNER. The heaviest piece that it would have today would probably be the 5-ton truck or engineer vehicle, the ACE, sir.

Senator RUDMAN. Let us see. Would that have any Bradleys in it at all?

General WAGNER. No, sir, it has no Bradleys.

Senator RUDMAN. No M-1's, certainly.

General WAGNER. During the testing of this division we are going to look at putting the Fast Attack Vehicle that we have looked at in the 9th Division in it for tests, but again that is lighter than our other vehicles. We have not put that vehicle into the design yet, but we do plan to look at some of them during testing.

17TH DIVISION SITE SELECTION

Senator RUDMAN. That is an interesting question staff has just asked me to ask. You probably will not have an answer. Well, you may have an answer to this question.

When will the site of the 17th Division be selected and announced?

General WAGNER. We hope to do that by the end of the summer, sir. As you know, we are looking at various areas now based on their capability to deploy a division from them. We have to look at what would be the construction costs to put another division on a post and also, since we are going to build this division within the constant end strength of the Army, we do not want to open up any more posts. So we are looking at posts that are already in being to do that job.

Senator RUDMAN. Approximately how much money are you programming in your 5-year plan to create this division?

General WAGNER. Sir, I would have to provide that for the record. Part of that would be the MCA costs that would be necessary on any post we put it on. As far as equipment that is going into it, we are just redistributing that equipment within the Army. We will increase buys of some items like rifles, the 40-millimeter machine-gun; things of that nature.

[The information follows:]

5-YEAR PLAN—CREATE DIVISION

Since the FY85 active military end strength remains relatively level, the activation of the 17th active component division will be accomplished without incremental increases to Army total obligation authority outlined in our FY85 budget request. Within that constant total obligation authority there are, of course, areas in which some costs can be attributed to the 17th AC Division.

In the area of procurement, for example, most of the equipment for the new light division will be provided from redistribution of on hand equipment or already planned procurement, but some procurement lines have been increased.

It is anticipated that much of the costs associated with the new division will be in the area of MCA. Those costs cannot be detailed, however, until a final stationing decision is made. That decision is expected in August 1984.

Future costs for the new division during the forthcoming five year program are under development. The force structure when viewed in totality will continue to reflect no overall increases, since total Army active component end strength will remain constant. Impact on overall procurement strategies is currently being evaluated. Any increases attributable to the new division will be reflected in our FY86 budget submission.

COMBINATIONS OF POSTS

Senator RUDMAN. Well, you have announced, I believe, three or four places under consideration, as I recall.

General WAGNER. Yes, sir. We are looking at combinations of posts. For example, we are looking at combinations of Fort Campbell, Fort Benning, and then Camp Drum, and also Drum as a division post. We are looking at Fort Ord and Fort Lewis as a combination. We are also looking at Alaska in those various combinations. There are also several others being considered.

REVIEW OF WARRANTIES

Senator RUDMAN. Senator Andrews has arrived. I just want to say to Senator Andrews that we have had a very long discussion on warranties, which I think you would have found most satisfactory. We have talked about half an hour and I will be happy to brief my friend from North Dakota.

Senator ANDREWS. I do not know of anyone who is more competent to discuss the issue of warranties than my friend from New Hampshire with these people at the table here. He shares my interest in it and we know that many of you in the Defense Department are doing their utmost to make them work because you realize that they are going to result in more cost-effective weapons that perform better.

That is, of course, the view we share on both sides of this table. I assume that is essentially what you discussed.

Senator RUDMAN. They are going to supply to us—it is a very controversial program, as the Senator from North Dakota knows,

the Divad Program, and they have an interesting warranty system in place to protect the Army against failure of the contractor, and I have asked to have that supplied for the record so that we will have a chance to look at that.

It turns out the Army has been doing that quite a bit before we put this in place, which is very encouraging, and I will make sure that the staff has the copies sent to the Senator.

Senator ANDREWS. In fact, we took this warranty concept really from not just the civilian side but also the military side on the C-17, for instance. It was bid to the Air Force with a warranty which showed us that warranties in fact can and do work.

What you have done shows us that warranties can in fact and do work, and the interesting response we got from the Secretary of the Navy was in telling us that we know how to make them work. And the fact that you have made them mandatory across the full spectrum has helped us immeasurably in negotiating. And he specifically referred to, as Senator Rudman remembers, the Harrier and how they were able to get a better contract for the Harrier, a most cost-effective contract, because warranties were then mandated.

And in essence I assume that is about what you have told the committee—that it works well and you are making it work.

Senator RUDMAN. After hearing all three of the services and in light of the Army's testimony this morning I am convinced more than ever that—and we will have to discuss this privately—that our problem is not with the Army, is not with the Navy or the Marine Corps or the Air Force. Our problem is with DOD and we will have to deal with that in some very effective way.

Senator ANDREWS. That is very true. As the Senator from New Hampshire knows, we asked Ms. Gilleece to furnish the committee the information on who she was working with in the military contracting field to try to upset this law, because we understand there have been a number of those little meetings going on and we are expecting to get that information from her I would think within the next week or two, or certainly by the time we come back from our Easter recess.

That will make very interesting reading because last weekend I took another trip out into, shall we say, the hinterland where the major contractors are, and they told me about the many pleas that they have gotten from key individuals within the Defense Department to gin up dissatisfaction with the warranty concept, and they said, we do not know. We kind of like this warranty thing. How come they are telling us we have got to be dissatisfied with it.

So we have got an interesting story to look into.

Senator RUDMAN. The long and short of it is that the best way to make a law that you do not like fail is to kill it with kindness and the way bureaucracy kills law with kindness is to draw regulations that are so intricate in nature and so impossible to interpret and with so many unanticipated results that anyone looking at those regulations in their right mind would refuse to enter into a contract that would cover those regulations.

Being a lawyer and not a farmer I know how to do that, but I have told Senator Andrews that you can do it pretty easily.

Senator ANDREWS. That is right. And I have also been around this place for 21 years and I found out that the bureaucrats can louse up the best law in the world by writing regulations that are impossible to perform to. I think we saw some of that at the Pentagon.

Let me ask just one or two questions.

Senator RUDMAN. Go right ahead. I have been asking questions for 40 minutes.

Senator ANDREWS. Well, you love hearing the sound of your voice every now and then.

Senator RUDMAN. Senator Stevens likes to hear the sound of my voice, actually, Senator Andrews.

Senator ANDREWS. As I understand it, the warranty does cover the kinds of problems that have been plaguing Divad. Is that not essentially true?

General ADSIT. Yes, sir, that is true, and we provided some examples of the testimony.

PERSHING II

Senator ANDREWS. And I am sure you did all of that. Now I would like to ask a couple of questions, if I could, on the Pershing. I suppose you have gone into that.

Senator RUDMAN. No, go right ahead.

Senator ANDREWS. One thing about my friend from New Hampshire is he is thorough and spends a great deal of time delving into these issues that are so extremely important.

What is the deployment schedule of Pershing II between now and the [deleted].

Mr. SCULLEY. Sir, we would have to provide that for the record in that it is classified.

[The information follows:]

PERSHING II DEPLOYMENT

At the present time, we have two fully operational batteries of 9 missiles each deployed in Germany. A third battery will become operational [deleted]. Deployments will continue [deleted].

MISSILES IN WEST GERMANY

Senator ANDREWS. That is what I was afraid of. And did the administration—can you answer this—did the administration reach agreement with Chancellor Kohl and his Defense Minister in November of 1982 that only 108 missiles would be sent to West Germany?

You are probably not in a position to answer that one either.

Mr. SCULLEY. I think we should also provide that for the record, Senator Andrews.

[The information follows:]

PERSHING II DEPLOYMENT

At the present time, the Army plans to deploy 108 operational missiles to Germany to replace the currently deployed 108 operational P1a missiles. Additionally, [deleted]. There will be no other U.S. Pershing II [PII] missile deployments to Germany without the consultation and agreement of the German government.

AIRBORNE ACCIDENTS

Senator ANDREWS. OK. Well, let me get off of that, because my next question got to even deeper questions that we have on that. It was something that came from the time Senator Stevens and I were in Europe and ran into some of this. And we will get it in the proper setting.

There was an article in Defense Week on April 2 that said hundreds of U.S. servicemen have perished since the mid-1960's in airborne accidents caused by split-second separation of the helicopter's blades from its rotating mast. I was riding with our University of North Dakota aeronautics people last Saturday, as a matter of fact, with my wife in a helicopter, and they were telling me about this story.

Dozens of choppers—in fact, the guy flying the chopper is the top instructor at the University of North Dakota. He is an individual with, I think, 3,000 hours in Army helicopters in Vietnam, a delightful guy, named Rob White.

I am told that dozens of choppers designed and built by Bell Helicopter have broken up in flight, sent blades sliding through various parts of the machine, and that the Army has known about the malady for more than a decade, yet no one is doing much to resolve the problem.

This was an article in Defense Week. It was followed up by a conversation I had with this individual who is an instructor in helicopter, and the question I have is what is being done to correct this long-known problem? Is the article in Defense Week essentially true?

General KENYON. Sir, I would rather attempt to answer your next-to-the-last question rather than the last one. I just had a long session with CBS on this whole incident on Monday.

ROTOR SEPARATION ON BELL-DESIGNED HELICOPTERS

In the late 1960's and early 1970's there were incidents, several incidents, of rotor separation off of the Bell-designed helicopter. The Army took actions in those aircraft and they are specifically the UH-1 helicopter, which has a civilian counterpart probably like you were flying in, and the AH-1 Cobra helicopter. We changed the masts on both of those aircraft and those that we could not change right away we put an insert plug in the mast to strengthen that mast.

We also changed the bearings in the Cobra rotor system. We changed the hydraulic system and we modified the stability and control augmentation system, which is what assists the pilot to make the helicopter go smoothly. But let me say that we cannot determine any of those incidents that occurred, sir, while the helicopter was being flown within its prescribed flight envelope or within its designed limits.

If the helicopter is taken outside of its design limits, the actions that we have taken will not preclude, in some cases, that from occurring. However, with the actions that we took in the area of hardware, and we also produced some films that the aviators see, and we changed training programs, which I saw as Deputy Commander at Fort Rucker where we train most of the helicopter

pilots for this country and many other nations and use these helicopters. And, by the way, we teach combat tactics and we have never had an occurrence of this type in our training base.

With all of these things we have seen that since 1975 we have had, I believe, 11 occurrences of this over the 1975 to 1984 whereby in the earlier years we were having 10 to 12 a year. There is not any way to ensure that such an incident never occurs if you fly the helicopter like it was not designed to fly.

For instance—and I use this analogy with folks—if you drive an automobile 150 miles an hour, the braking system will not give the same reaction as they designed it for at somewhere around a nominal 50 miles an hour, and that is a pretty close parallel.

To put it on a different type of tack, those helicopters designed by Bell and the Army have accumulated some 11.6 million flying hours. The accident rates overall and the fatal accident rates for those Bell helicopters are less than the corresponding accident rates for all other helicopters that we have by all other manufacturers, which have accumulated some 2.6 million flying hours.

In fact, the statistics are that the Bell helicopters are 5.8 accidents per 100,000 flying hours, whereas the other categories are 6.8. If I look at the civilian sector where there is a much larger data base, the National Transportation Safety Board and the FAA have data to show that the Bell helicopter, configured commercial helicopters, have about one-half the number of accidents, one-half the number of fatal accidents, and one-half of accidents that are attributed to rotor systems.

So I do not believe that the helicopter in that design is unsafe, and we have significantly reduced the occurrence of this type of accident, though there is no way, sir, that we can preclude it when the helicopter flies out of its limit.

DESIGN PROBLEMS

Senator ANDREWS. As I understand it, the mast and rotor blades are in a given position and when you cant them going through a severe attitudinal change the rotor blades bump the mast and scar it up or scuff it up and weaken it, and after repeated bumpings it may well in fact indeed fail. That is what you mean by going outside the envelope?

General KENYON. That is correct, sir.

Senator ANDREWS. Now you say you have made design changes that have modified that or lessened the chance of that happening. Was the original design of this helicopter a DOD design or a civilian manufactured design?

General KENYON. Sir, they are all—the detailed design factors all come from contractor-manufacturer origin. However, all have to undergo very detailed and specific tests, both operationally and from an engineering standpoint, where what we call the flight envelope—

Senator ANDREWS. That is true, but the reason for this question is we are getting a lot of comment when we talk about warranties on the fact that military equipment is designed by the Pentagon, and since the Pentagon does the designing it is difficult for the manufacturer then to offer a warranty on a Pentagon design.

Now what you have just told me, if I have heard you correctly, is that this was a design that essentially is a Bell helicopter design.

General KENYON. Yes, sir.

Senator ANDREWS. And that is intriguing. Obviously there is no warranty on this particular helicopter.

General KENYON. Not against this particular incident, no, sir.

Senator ANDREWS. No. And the fix that you have got is a pretty good percentage fix. In other words, you think it will help considerably when you are in a combat situation and trying to get the heck out of what you are in?

General KENYON. Yes, sir.

Senator ANDREWS. Sometimes you will indeed have to fly outside of the envelope, so you want a helicopter that is as forgiving in that kind of stressful situation as you can get.

Would you provide for the record—this is my final request for the record—a detailed rebuttal of this Defense Week article?

General KENYON. I would be pleased to, sir.

Senator ANDREWS. I detected that from your original comment. And the reason I am asking for that is the fact that when we take this bill to the floor—I learned this a long time ago from a great individual by the name of John Rooney who was my first subcommittee chairman here; he said you always want to get the maximum amount of information you can.

As you realize, when we take this to the floor, Senator Rudman, Senator Stevens, Senator Stennis and the rest of us as members of the committee have to defend what we have done, and an article such as this in Defense Week which is intriguing, to say the least, is one of those things that it would be helpful if we had the answers to in case any of our colleagues happen to raise those questions on the floor. And if we have it in the record we can refer then to the record and make the case for what we are doing.

So you can help us by providing rebuttal, and what I would like to do, Mr. Chairman, if I might, is put the Defense Week article in the record and then follow it up with the comments of the Army.

Senator RUDMAN. All right. We will have that inserted in the record in that order.

[The information follows:]

Monday, April 2, 1984

Volume 5, Number 18

Hundreds Of Soldier Deaths Laid To Bell Chopper Design

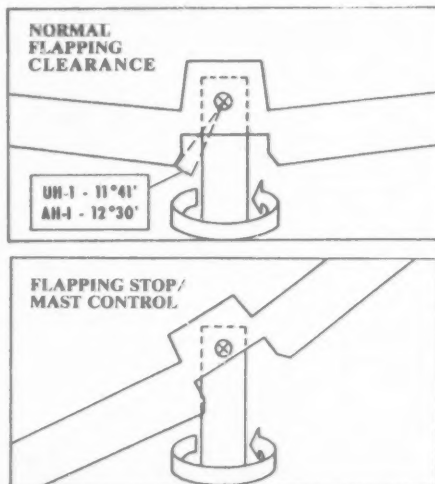
Hundreds of U.S. servicemen have perished since the mid-1960s in airborne accidents caused by a split-second separation of a helicopter's blades from its rotating mast. Dozens of choppers designed and built by Bell Helicopter Textron have broken up in flight and sent blades slicing through the cockpit and tail, pitching passengers to certain death. Both Bell and the Army have known about the dangerous malady for more than a decade, yet little has been done to resolve the problem. Work on a corrective solution began ten years ago, but that project died of inertia.

George Gelerstein, Bell's corporate counsel, warned J. F. Atkins, Bell president in 1979, that he considered "this matter very serious and, if we do nothing about it, very likely to be the subject of attempts at punitive damages." A new spring, developed to remedy the problem, could be "retrofitted rather easily to the existing" helicopters, Gelerstein said in his memo of April 25, 1979, adding that he encouraged "management to actively support the rapid development of this invention into production and retrofit...preferably, of course, with Army funds."

The midair mishaps are caused by "mast bumping," according to Army assessments of the problem, and apparently are a hazard exclusive to Bell's rigid "teeter-rotor" design standard to the Army's Cobra attack craft and UH-1 Huey utility helicopters. Both craft are to remain in Army inventories through the mid-1990s. Identified by Army Safety Center officials since 1973, "mast-bumping" occurs when flapping helicopter blades exceed prescribed stress limits on the rotor hub, a spindle-like device which links the craft's blades to the mast. Under stress, the hub bumps into the mast, according to reports over the past 10 years by the Army Aviation Command, the Army Training and Doctrine Command, and the Army Research and Technology Laboratories at Fort Eustis, Va. A 1974 study of 47 "in-flight breakups" for the commander of the Army safety center found, for example, that "in all mishaps, the common factor was severe mast bumping followed by mast separation.... While failure of components...may have initiated a sequence of events, the catastrophic mishap resulted from separation of the main rotor due to mast bumping." The initial bumps do not always sever the mast immediately. However, repeated bumping may crimp the mast and later wrench it apart in subsequent flights.

The peculiar Bell design and midair catastrophes were revealed last week in a series of articles by *Fort Worth Star-Telegram* reporter Mark Thompson, who cited official Army and Navy estimates that 225 soldiers have died in mast-bumping accidents. In April 1983, the *U.S. Army Aviation Digest*, an Army publication, said the mast-bumping flaw had resulted in 213 deaths and property damages totaling \$21.3 million.

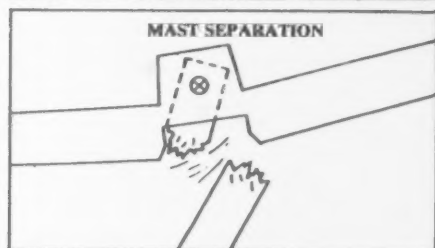
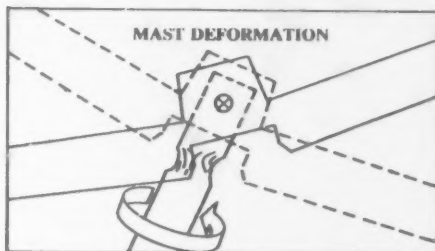
Bell, headquartered in Fort Worth, disputes the Army's figures and described the newspaper's series as ir-



According to Army calculations, "mast bumping" occurs when the blade and hub assembly of Bell's "teeter-rotor" choppers dips beyond acceptable limits and comes in contact with the helicopter's mast.

responsible and sensationalist. Bell dismisses charges that the design is faulty and blames the crashes on reckless pilots. Bell also requested last week that the *Telegram* remove its vending boxes from the helicopter company's Fort Worth plant.

The decade-old problem has never been resolved because neither Bell nor the Army wanted to pay the costs



Repeated bumping can dent or weaken the mast over time, precipitating "inflight breakup" and in most cases, the death of all occupants in the helicopter.

of fixing the choppers. The spectre of a multi-million-dollar repair bill prevented the Army from installing a Bell-engineered protective spring on the hub of the Army's 7,000 twin-bladed Bell choppers. According to the Army, this would have reduced mishaps, fatalities and injuries. Maj. Robert Pilnacek, an Army spokesman, told *Defense Week* that the retrofit of 2,800 Hueys and 1,000 Cobras was estimated to cost \$20 million. The protective spring would have saved six lives and \$2 million in equipment annually, according to the Army lab at Fort Eustis.

Despite advocacy in 1979 by Maj. Gen. Story Stevens, then chief of Army research and development, the hub spring plan fizzled in 1979 because of fears that the real cost might soar to several hundred million dollars and require the replacement of the transmission cases of the Bell choppers. Thus, the Army's chief deterrent to mast bumping is repeated warnings to pilots. "We don't have any efforts underway to resolve mast bumping except the training of aviators," said Pilnacek.

Both the Army and Bell Helicopter officials dismiss the idea that "mast bumping" is a danger to Army aviators. Army and corporate officers say the deadly phenomenon occurs only when pilots exceed the "flight envelope" and put the aircraft through unnecessarily quick turns, tortuous rolls or precipitous dives. Such maneuvers, they assert, test the limits of the teeter-rotor design and should not be attempted.

"If you're flying along in a helicopter and you jerk the stick one way and then another, you may very well place the helicopter outside of the aircraft's envelope," Bell attorney Gelerstein told *Defense Week*.

Bell officials say there have been no deaths of civilians as a result of mast bumping experienced by the firm's civilian craft with the teeter-rotor design. This suggests that the mishaps and soldier deaths are the result of errors by Army pilots, Bell contends. "The military has a tendency to take things to the brink and once you get to

the brink, there's no turning back," said one Bell executive.

In the same breath, however, Bell officers note that they long ago warned the Army about the mast-bumping problem. In fact, Bell received \$97,000 grants in 1975 and 1976 to study mast bumping, and proposed the hub spring retrofit after a \$500,000 feasibility study in 1977. Bell also installed protective plugs in the thin-walled masts of an undetermined number of UH-1H models during the 1970s and promised to replace such models with "thick walled" aircraft. "Once we appreciated that helicopters were being employed [outside the envelope], then it was our decision to extend that flight envelope if possible," Gelerstein said.

By March of 1979, Bell had flight tested the hub spring and concluded that installation would improve the safety margin of the UH-1H fleet. The spring was to cost between \$3,000 and \$5,000 and, the Army projected, would reduce the severity of mishaps in up to 60 percent of the mast-bumping cases studied. Noting the "very encouraging results" of company tests with the spring, Gelerstein said in his 1979 memo: "I am as sure as one can be in the product liability field that such a course of action will be of considerable benefit to us."

A month later, however, work on the spring mysteriously stopped. "There was a decision but it just wasn't memorialized," Gelerstein said last week. "We were advised [by the Army] that it wasn't in the offing."

One reason for the spring's demise was concern that installation would simply transfer stress to a helicopter's magnesium transmission case and disable the aircraft's power controls, Pilnacek explained. While cost estimates vary, many sources agree that the transmission case replacement would double the price of guarding against mast bumping. Several Bell officials told *Defense Week* that the Army did not regard mast bumping as a problem serious enough to warrant a fleet overhaul. "The Army just decided that it didn't want to pay for it," said one. "What could we do? We couldn't just walk in and do the work without their permission?"

Though the number of mast bumping fatalities has decreased steadily since 1967, the problem is a festering wound for Bell, the nation's largest helicopter maker. After a jury awarded \$600,000 in a mast bumping case in 1970, the firm has settled all such cases out of court. The company reportedly faces \$250 million in mast bumping suits at present.

What is worse, for Bell, is that public allegations of unsafe design of the teeter-rotor models may provide fodder for competitors bidding on future military helicopter projects.

Army officials say they've upgraded warnings to helicopter pilots about the danger of mast bumping in "low-G" or "negative G" situations—that is, when the aircraft and its rotor system are propelled in different directions. Training movies and videotapes warn of the dangers of mast bumping and suggest proper actions to survive its actual occurrence.

However, the Navy has responded more directly to the mast-bumping problem at its Patuxent River Test Pilot School in Maryland. Several fatalities involving top Naval helicopter test pilot trainers have led authorities at the school to abandon the Bell AH-1S Cobra to train with an aircraft without the teeter-rotor design. "The Navy [operation at Patuxent River] has stopped using the [Navy's Cobra derivative] and we would like to replace it," said a Navy source.

ZERO G CONDITION

I might just comment it is my understanding that when you talk about the flight envelope that this kind of mast deformation generally occurs when the pilot, for whatever reason, puts the aircraft into a zero G kind of position; is that not correct?

General KENYON. That is one of the situations, yes, sir.

Senator RUDMAN. Is it one of the major situations?

General KENYON. I cannot remember the details of the accidents, but that is one of the prevalent factors.

Senator RUDMAN. We have a rebuttal here from Bell, and we will make sure Senator Andrews gets that as well.

Senator ANDREWS. What I would like, Senator, is I would like to have the Defense Week, the rebuttal from Bell, which of course we will get, and the rebuttal from the Army all together so that it can be there, so that the total information package is there.

Senator RUDMAN. We will have all of that inserted for the record.

[The information follows:]

MAST BUMPING

Mast bumping is a phenomenon involving the inadvertent contact of the hub of the main rotor with main rotor mast in teetering rotor helicopters.

Teetering rotor helicopters are the UH-1 (Iroquois) AH-1 (Cobra) and the OH-58 (Kiowa) manufactured for the Army by Bell Helicopter Textron, Incorporated, Ft. Worth, Texas.

Mast bumping occurs when some event has driven the aircraft beyond its performance limits, sometimes resulting in main rotor separation. Mast bumping itself has not been shown to be the initiating cause of any accident.

Examples of causative events are mechanical failures such as breakage of flight control linkages and loss of tail rotors. Pilot induced events such as aerobatic flight, and other factors leading to low "G" flight conditions, such as extreme turbulence, may also result in mast bumping.

All materiel systems, commercial or military, are designed to operate within prescribed parameters, which, if exceeded, may lead to undesirable events. Example, if we operate our automobile at excessive speeds, the probability of an accident increases. If teetering rotor helicopters are operated within operational/design limitations, the likelihood of a mishap is remote.

Teetering rotor helicopters, which make up approximately 80 percent of the total Army helicopter fleet, have over 27 million flight hours since 1967 with an overall accident rate less than the total helicopter fleet.

Despite the excellent safety record, since 1967 there have been 61 Army helicopter accidents with 223 fatalities involving mast bumping/rotor separation in teetering rotor aircraft.

On April 6, 1984, General Donald R. Keith, Commanding General of the U.S. Army Materiel Development and Readiness Command, commissioned an independent panel to determine if additional safety margins could be achieved in these aircraft. Based on the commission's preliminary analysis, the Army is implementing a number of actions.

First, the Army is proceeding as quickly as possible with the design and qualification of a hub spring for the UH-1 and AH-1 helicopters to reduce main rotor flapping, particularly where flight maneuvers or mechanical failures may result in low "G" flight conditions. The objective is to increase the safety margin of teetering rotor helicopters when operated at the extremes of their current flight envelopes.

The Army has also initiated a joint U.S. Army Training and Doctrine Command (TRADOC) and U.S. Army Materiel Development and Readiness Command (DARCOM) study of future organization and operational concepts to determine if the flight envelope for existing UH-1/AH-1/OH-58 helicopters needs to be expanded and, if so, what modifications may be required to accomplish this expansion.

Finally, the Army will continue and emphasize a strong pilot awareness program for all teetering rotor helicopters on how to avoid flight conditions which may result

in mast bumping. This will include mandatory viewing on a recurring basis of the 1978 training film produced by TRADOC on mast bumping.

Aircrew safety continues to be paramount. The Army has and will continue to vigorously pursue actions to minimize any hazard to flight aircrews and passengers.

EXCEEDING HELICOPTER FLIGHT ENVELOPE

General KENYON. Senator Rudman, if I may, the zero G's would be a condition in which a person unfamiliar with the aerodynamics, and so forth, could visually see that. There are other conditions which exceed the envelope which would not be visible to the eye.

For instance, a crew flying along in a helicopter, in a single-engine helicopter, has an engine failure which requires certain control inputs, and those control inputs, if done rapidly and to extremes, no one would ever see a noticeable difference, but the helicopter would be beyond its flight envelope.

Senator RUDMAN. I understand that.

Senator Andrews, do you have any other questions?

Senator ANDREWS. No. I wanted to get that because I saw the article in Defense Week and I wanted your explanation along with the Bell explanation so that they could be in the record and we would have that, and the questions on the Pershing we will ask in the appropriate way.

And my staff tells me you have done your usual fantastic job of covering the warranty issue better than I could have had I been here.

Senator RUDMAN. We will proceed with questions for another 10 or 15 minutes.

CH-47

I want to go on to the CH-47 by the Italian Government. The Army seeks \$110 million for 11 CH-47's that became available from the Italian Government as a result of a [deleted]. The justification material states the basis for the request was to satisfy an obligation to a NATO ally.

What is that obligation and how is it incurred? Do you really need them? I mean, is this something you have got good use for?

General KENYON. Senator Rudman, the background of that particular program lies primarily in the political and diplomatic channels, which we are not totally familiar with. [Deleted.]

The benefits to the Army. The Army was given the funding to do this and we were receptive because our requirement for the CH-47 helicopter is 582 aircraft. You know that we are ongoing in a modernization program which will get us approximately 436 CH-47 Delta model aircraft, significantly more capable, and that our long-term program then required us as we did our program planning to buy the additional increment over some 150 helicopters to meet that requirement.

The advantage to us is that the near-term procurement of these aircraft, which we have surveyed and come very close to current U.S. C-model configuration, would give us new medium-lift helicopters earlier.

PATRIOT SYSTEMS

Senator RUDMAN. Let us go on to the Patriot system. Because of some problems with test results the Army established last year three milestones before deployment. How many of these conditions have been met and what have been the results of the testing since last year on Patriot, if you can give a fairly brief answer for that for the record?

General KENYON. Yes, sir. Sir, we have not duplicated yet a follow-on of the test which we had to stop last year called a follow-on evaluation. It is scheduled to occur in July of this year. However, in the interim we have done a great deal of modification, both hardware and software, to the Patriot systems.

We have relooked the training because we had not done the training properly before that, and we have upgraded the logistical support for the system. We have a great deal more experience and we are scheduled to enter the test in July with follow-on deployment in December of 1984.

And, if we could, I might ask General Maloney to comment for 1 or 2 minutes in that that is being done at his center.

Senator RUDMAN. Where is that testing being done?

General MALONEY. Sir, it will be done at Fort Bliss, TX. I am the commander of the Air Defense Center at Fort Bliss. The 4th Battalion, 3d ADA will be the unit that will undergo the test, beginning, as we mentioned, in early July.

Thus far that unit has been formed, has gone through 16 weeks of training into which we cranked lessons learned from our previous training cycle. I have formed a team of my own experts at Fort Bliss, some 86 men. We then took the battalion to the field and gave them one intensive week of tests under field conditions to see if the battalion is ready and, secondarily, whether the equipment had improved to that point that we have confident that we will successfully complete the follow-on evaluation in July.

The results of that were that I did certify the unit as ready to go into that follow-on evaluation and it was my observation, although our method of gathering data is not as elegant as it will be in July, that the equipment performed very, very well.

The equipment in the hands of my troops during that week of intensive evaluation performed at higher level than the Hawk equipment which we had in the field for about 26 years. So I feel very confidence that we will do well in the follow-on evaluation and that the program is moving very satisfactorily.

DIVAD OPERATIONAL TESTING

Senator RUDMAN. Will Divad come to your center for the same kind of extensive operational testing before it goes to the troops in the field?

General MALONEY. It will come there for operational testing, yes, sir. Now there will be units—the operational testing of Divad will be done with troops who have been through the training system, so they will be equipped before the operational testing is conducted, but the full-blown OT follow-on evaluation will be with troops that have been through my center.

POMCUS REQUIREMENT

Senator RUDMAN. Thank you very much, General.

Let me move on to POMCUS for a moment. Last year's act restricts plans, as you know, to proceed with POMCUS sets 5 and 6 until 70-percent of the active and 50-percent of the Reserve equipment needs are met. Have you made a determination that these equipment objectives have been met? Have they been met and, if so, what are the current plans for POMCUS 5 and 6?

General DEMOSS. I did not hear the first part of the question.

Senator RUDMAN. The first part of the question was that last year's Act set forth a requirement that before you could go ahead with POMCUS 5 and 6 you had to have a 70-percent active and 50-percent Reserve deployment on the equipment needs. You had to certify that before you could proceed with 5 and 6. Where are we?

General DEMOSS. We do plan on following the guidance that we received from the Congress.

Senator RUDMAN. Are you ready to state yet that the 70- and 50-percent equipment needs have been met, or are you not at that point yet?

The reason I ask the question, let me just go on and maybe you can answer it better, General, a CBO analysis prepared for the committee concludes that the 70- and 50-percent objective has been met for most equipment types in the Army inventory, a major exception being the Bradley, and we just wondered whether it was your intention to delay storing Bradleys in POMCUS until the active and Reserve objective for this weapon system has been met.

Evidently, according to CBO—this may be one of the times you do not want to disagree with CBO—it appears that they say you have met your 70 and 50.

General DEMOSS. Well, the reason I was kind of hesitant to answer your question originally, Senator, was that, you know, there are a number of lines, as you know from going through Germasheim, that are in POMCUS, and some of those lines meet the 70 and 50 requirement and we could go ahead and put them in POMCUS sets 5 and 6, and some of them we cannot.

Senator RUDMAN. Why don't you answer that for the record because that is a pretty important matter, I know, to the chairman in particular.

General DEMOSS. Some of it is classified particularly what we cannot put in POMCUS.

Senator RUDMAN. Why don't you let us have an answer for the record. I hop the Army does not say that CBO is wrong again. I mean, this is very much in your interest.

General DEMOSS. We just saw the CBO report just this morning. [The information follows:]

POMCUS 70/50 CRITERIA

The Congressional Budget Office (CBO) analysis has been reviewed, and has been found to generally agree with a similar analysis conducted by the Army. Under the current congressional language, the Army can begin to fill POMCUS Sets 5&6. Some items required for POMCUS Sets 5&6 do not meet the 70/50 criteria. The greatest impact is on equipment to fill Combat Support and Combat Service Support (CS/CSS) units, that is, trucks, generators, and trailers. Any changes to the current

program, such as a cut in procurement, or a change in the 70/50 criteria, will impact on the Army's ability to fill POMCUS Sets 5&6.

BRADLEY FIGHTING VEHICLE

General WAGNER. Sir, one thing that solved that problem, for example, on the Bradley, is that we do not put it into PCMCUS until a unit is equipped with it first that would fall onto it. When that happens you automatically get your 70 and 50.

C-17

Senator RUDMAN. I have some questions on intratheater airlift requirement—the good old C-17. I assume your position is that you need the C-17. Now I do not think we have to go over a long discussion about that. I am not going to get any disagreement from this table on that.

General WAGNER. An absolute necessity, sir.

Mr. SCULLEY. That is right.

STINGER

Senator RUDMAN. That is the Army's position and has been consistently. I do not really think we have to beat that horse any more. We have been discussing it.

Let me talk about Stinger, the air defense missile, now a very important part of the Army and the Navy's air defenses. Last year the Congress held Stinger POST-production down pending development of an improved version of the Stinger RMP. Then the budget projects no funds for RMP production in 1985 or 1986.

What are your plans for production of Stinger POST? When will the transition take place, and what is the requirement, if you can talk in open session, of the RMP?

General KENYON. Sir, we are currently executing the Stinger Program with fiscal year 1985 a transition cut of the basic and into the Stinger POST missile. There are no funds in our program and request for RMP because we had to do some engineering work of approximately \$40 million to get to the RMP and the first increment of that we sent over to the Congress in a reprogramming action in fiscal year—it is 1983 dollars, I believe, sir.

And we have not been able to obtain approval of that reprogramming action and we are currently in the stages of making our last attempts to get approval. And if we cannot, we will then continue with Stinger POST-production which, as you know in discussions we have had—and I cannot discuss the details of postulated future threat—will not totally meet the future threat, although the POST meets the threat that it was designed against.

Senator RUDMAN. I assume the Army is very pleased that that system that we do have works so well in terms of the current threat environment, that it is very useful in recent months beyond the Army's needs.

General KENYON. Yes, sir.

TESTING

Senator RUDMAN. I take it that that is a program in which you have high confidence that it will do what it is supposed to do, that it has worked well in almost all of its tests, and once the initial problems were straightened out on the system. How often do you actually test one, General, down at your Air Defense School?

Do you take out of production x number? I know they are very expensive. How do you ensure that they work? We know that they do work, but out of a production x number, do you fire one off?

General MALONEY. Sir, we select out of each lot that is produced, we select the smallest statistically valid sample, and we use those. We get training value from them, but we fire those and observe and record the results.

Senator RUDMAN. Right. What is the approximate cost of that?

General MALONEY. Per weapon, sir, about \$70,000.

Senator RUDMAN. That is what I thought. I knew it was \$60,000 to \$70,000. Do you draw lots for the soldier, or do you fire those yourself, General? [Laughter.]

General MALONEY. Sir, we give that honor to the best out of 10 of our trainees; the man who scores the highest is permitted to fire the weapon.

Senator RUDMAN. That must be quite a thrill to squeeze off \$70,000.

General MALONEY. It is indeed, sir.

Senator RUDMAN. I would love to watch that.

General MALONEY. We would love to have you.

REMOTELY PILOTED VEHICLES (RPV)

Senator RUDMAN. I have a few questions on the remotely piloted vehicles. You are asking for \$144.5 million for procurement as well as \$103 million for R&D in that RPV program. GAO, of course, has noted that the critical testing, the flight testing, has just begun. You must have a very high confidence level on that to be requesting this production money rather than maybe funding only some portion of it for long-lead production items.

Is there anything wrong with that approach, or is this such a basically simple technology that you are very convinced you can go right ahead with it?

General KENYON. Sir, we are having to relook that right now as a test program. We have had 37 flights, 32 of which were successful, but recently we have had some that are not, and we have a panel currently doing a detailed review of the program, validating the length of the development schedule, and depending upon the outcome of that we may have to relook production initiation.

We feel we should stay where we are today with the request or perhaps do like you said and only commit at this point in time to long lead. That panel is due to report out at the end of April and we have a hard decision to make.

Senator RUDMAN. I would be interested if you will get back to us at the appropriate time to keep the committee informed. It just seems to me from sitting here, you know, in my 4th year of attending most of these hearings that if there is one area that if I were where you are I would be very careful, that would be to

commit production funds before you are absolutely sure, because that is a source of great dismay and a lot of fair public comment.

I am not just talking about the Army. I am talking about procurement generally. And, you know, you get hit with a charge of having spent x millions of dollars producing something and never even knew that it worked, and so I would hope that you would exercise caution with your RPV and with everything else.

SUBMITTED QUESTIONS

We will have a number—not a great many; I have gone through most of the things that I want to go through, but we will have a few other questions. You have more? You always have more.

We will have some additional questions. We will keep the record open until—we will send them over today and keep it open for whatever is a reasonable period of time, 2 weeks, to get them back.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

LHX

QUESTION. You are anticipating that LHX will be a night, adverse-weather helicopter. Our experience with night, adverse-weather technology is that it is very expensive and often subject to developmental delays. What makes you think that LHX will be any different?

ANSWER. The critical electronic subsystems on-board LHX, including the night/adverse weather capability, will be developed as an integral part of the total weapon system. The continuous use of simulators and mock ups will ensure that all critical subsystems are developed and integrated into the LHX on a well defined schedule. We fully expect the mission equipment development costs to be a significant part of the total LHX program. Through competition and rapid advances in micro electronics technology, we expect these costs to fall within the overall program estimates.

LAW

Question. What Light Anti-tank weapon does the Army propose to buy with the \$33.8 million requested?

Answer. As a result of the Congressionally directed LAW evaluation, the Army cancelled the Viper System and is completing the evaluation of its current LAW (M72A2/A3), a product improvement of this LAW, and the Swedish AT-4. The FY 85 procurement will be selected from these options after completion of detailed testing. The Army has three production Firm Fixed Priced options for the Swedish AT-4 for FY 85, FY 86, and FY 87 (375,000 rounds), with an average unit cost of \$678/round. The M72 LAW improvement is estimated at \$450/round for a similar procurement, and we intend to have similar contract options for the FY 85 In Process Review. Until all testing is complete and evaluated, no procurement will be made. Both the HAC and SAC will review this decision, prior to procurement.

Question. Do you believe it is necessary to have a domestic source of production for this weapon and what are your plans in that regard?

Answer. Until the Army selects its improved LAW for production in FY 85, it accepts the current M72 series LAW for this role. We currently purchase our training needs from Norway and have a production base in layaway at Lonestar Army depot.

If the Army selects a product improved LAW or the current LAW for production in FY 85, we intend to procure these needs from U.S. sources and will have production contracts prepared for this purpose. If the AT-4 is selected, we intend to exercise our production contract option in FY 85 and begin transition of this product to the U.S. Our preliminary concept would be to establish a competitive base in the U.S. by allowing contractors to bear the cost of facilitization and amortizing the expense over the life of their contracts. A learning procurement would be let at, or below, the cost of current AT-4 prices from Sweden.

JOINT TACTICAL MISSILE SYSTEM

Dr. Sculley, this year your two major programs associated with the attack of follow-on forces--the JTACMS missile and the JSTARS radar--increase substantially. The Army portion of the JTACMS budget request is \$79.0 million and the Army JSTARS radar request is \$108.2 million. Reports indicate the Air Force may withdraw from JTACMS and pursue a separate cruise missile.

QUESTION: Can you clarify the situation? Does the Army want JTACMS to remain a joint program?

ANSWER: The Army and Air Force continue to support development of a conventional capability under the Joint Tactical Missile System Program which would enable Army forces to engage key targets with surface to surface means beyond the range of cannon and rocket artillery and provide the Air Force with an improved standoff weapons capability. The Army has been conducting detailed analysis of target sets to include characteristics and location over time. Additionally, a variety of options have been "played" in computer simulated "force-on-force" battles. Options considered in the analysis include variants of the LANCE (T-22), PATRIOT (T-16) and the Multiple Launch Rocket System (MLRS). The Army's analysis is to be concluded by mid-May and then briefed to the Army leadership. After the Army requirement is determined, the areas of commonality with the Air Force requirement will be considered under the joint program.

The Army may be offering up some \$54 million in JTACMS R&D instead of restructure JTACMS as an extended-range MLRS program.

QUESTION: Can you comment on this? Just where is this program headed?

ANSWER: The Army is analyzing a variety of technical alternatives in terms of both their effectiveness and their costs, in order to develop the most cost effective system that will satisfy the requirement. The Army has no intention of offering up funds requested for this program. Currently the Army is technically analyzing a number of combinations of delivery vehicles and submunitions. Additionally, those combinations are being played in computer simulations against a variety of target displays to determine the effectiveness of the combinations. The results of these efforts, along with system cost and affordability, are to be presented to the Army leadership in early June. Subsequent to that presentation and a positive decision, a request for proposal will be issued to industry to begin development.

PRODUCTION BASE FACILITIES/155MM BINARY PROJECTILE

Question. In light of that proposed treaty, are these funds still needed now?

Answer. The funds are more critical now than ever. While a complete ban on production, storage, transfer and use of chemical weapons is still our national goal, geopolitical reality dictates that we have leverage in negotiating with the Soviets. We should not expect the Soviets nor any other nation to respond to the treaty proposal if we deal from a position of weakness. Thus the administration has adopted a dual-based strategy for eliminating the chemical threat - pursue a chemical weapon ban treaty while concurrently modernizing the chemical stockpile. This concept is both realistic and complementary. It takes into consideration

the current inadequacies of our chemical retaliatory capability and the difficulties involved in achieving a chemical weapons ban treaty. Considering the spread of chemical weapons to third world countries and the lack of a credible US deterrent retaliatory capability, we are vulnerable to chemical warfare not only from the Soviets but by smaller nations who would initiate chemical use in an effort to exploit a perceived weakness. We would all desire a chemical weapons ban treaty. To enhance the prospects for successful negotiations, the US must continue to pursue as a high priority the current program for modernization of US stockpile. Until the threat posed by chemical weapons is effectively eliminated by treaty, the US must maintain a modern and credible deterrent.

Question. Why then do you need advance procurement funds in 1985?

Answer. Our FY 1985 funding proposal marries program requirements with the intent of the FY 1984 Authorization Act. The act authorizes production facilities and initial procurement of chemical munitions but prohibits the final assembly of any weapons until 1 October 1985 (FY 1986). Thus for the 155mm Binary Chemical Munition we are requesting only time-sensitive components at a cost of \$13.0 million. Before we can complete these munitions, Congress will have to provide the additional funds to procure the remaining components and to cover final assembly costs.

POMCUS STORAGE

Question. There is continuing concern that new M-1s are being put into POMCUS warehouses. This may occur with new Bradley vehicles, too. What would be the impact of requiring all our forward deployed units in NATO to be fully equipped with new M-1s and Bradleys before any are put into POMCUS storage?

Answer. New equipment is not placed in POMCUS at the expense of forward deployed units. The distribution philosophy of the Army is first to fight, first equipped. This means that the forward deployed will receive new equipment first. There are, however, some forward deployed units, such as the (Deleted) that do not receive the (Deleted). This is because the (Deleted) will receive the (Deleted). After the forward deployed, the early deploying units and their POMCUS unit sets are scheduled to receive new equipment.

ANTI-TACTICAL MISSILE

The Anti-tactical Missile program has been slow in getting off the ground, and the \$92.3 Million budget request appears to be under close scrutiny in OSD and the Army for a potential reduction.

Question. What is the status of the program?

Answer. The Army and OSD support funding the Anti-tactical Missile program at the level of the President's Budget (\$92.3 Million). The Special Study Group (SSG) study will be completed by 2nd Qtr Fiscal Year 1985, at which time requirements, inventory objectives and out year funding can be established. The SSG

analysis to date has evaluated the threat, determined

(Deleted)

concluded that a combination of (Deleted)

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The ATM Status Report has been staffed by the Army and Air Force and is now being forwarded through the Army Staff for submission to OSD.

Anti-tactical Missile (ATM)

QUESTION: We are well aware of the Soviet tactical ballistic missile threat in Europe. But the Army seems to have been slow in drafting requirements, inventory objectives and outyear funding.

When will the Army solidify the program so that it can move ahead more rapidly?

ANSWER: Funds were made available to the Army in May 1983 to begin the Anti-tactical Missile (ATM) Program, and the Special Study Group began work one month later. The SSG study will be completed by 2d Qtr FY85, at which time requirements, inventory objectives and outyear funding can be established. The SSG analysis to date has evaluated the threat, determined

(Deleted)

concluded that a combination of (Deleted)

(Deleted)

indicated the potential value of

(Deleted)

and emphasized

(Deleted)

QUESTION: When will the ATM requirements report requested by the authorization and appropriations committees be completed and transmitted to Congress?

ANSWER: The ATM Status Report has been staffed by the Army and Air Force and is now being forwarded through the Army Staff for submission to OSD.

SHORT RANGE AIR DEFENSE COMMAND AND CONTROL (SHORAD C2)

The Army budget requests \$129.4 million for the short range air defense command and control program, SHORAD C2. We understand that this program is also being restructured, and that the original budget request will be pared down significantly.

QUESTION. What is the minimum amount necessary to execute the revised SHORAD C2 program in FY 1985?

ANSWER. The Short Range Air Defense Command and Control program development strategy is being modified. This will affect fiscal year 1985 funding. Although the exact amount required in fiscal year 1985 has not been verified, the estimate is on the order of \$60 to \$70 million.

1985 Multiyear Procurement Programs

Question. The Army has proposed three major programs for multiyear procurement - a follow-on to the current UH-60 Black Hawk multiyear, CH-47D modernization program and the TOW 2 missile.

During the recent budget reviews, have any of the multiyear initiatives been changed or dropped? If so, what are the details?

Answer. Results of reviews of the FY85 budget are not final until released by the Secretary of Defense. Any changes to the multiyear initiatives included in the FY85 President Budget will be provided after completion of reviews by the Secretary of Defense.

DIVAD

You are budgeting \$529 million for the troubled Division Air Defense (DIVAD) gun. This system is 6 months late, over cost, and still has development problems. Some critics think the system is limited, even if it works right.

QUESTION: Why doesn't the Army drop this expensive program in favor of more proven air defense weapons?

ANSWER: Studies and analysis continue to show the SGT YORK to be the most cost-effective weapon for providing short-range air defense protection for the forward deployed heavy maneuver forces. This program was initiated in 1978 as an accelerated acquisition program to fill a critical deficiency as quickly and efficiently as possible. A number of alternatives were considered before the DIVAD program was begun. Among those alternatives were proven systems such as the German GEPARD and the United States Stinger systems. In the case of GEPARD, it was determined to be more expensive than DIVAD and less capable. Stinger did not adequately satisfy mission requirements. The DIVAD program was, therefore, adopted with the concurrence of both the Office of the Secretary of Defense and the Congress. The cost of this system has remained virtually unchanged since its inception and almost all milestones have been met on schedule. Delivery of the first production fire unit was five months later than forecast. However, this was several years earlier than delivery would have occurred under a normal acquisition program. The Army is well on its way to fielding this weapon in basically the time and at the cost originally agreed upon. We know of no better alternative.

QUESTION: What was the affordability target established for DIVAD in 1982 by the Defense System Acquisition Review Council (DSARC)?

<u>ANSWER:</u> (FY 78 \$ M)	Goal	Threshold
RDTE	184.4	195.5
Procurement	2137.2	2395.8
Total	2321.6	2591.3

QUESTION: And how does that compare to current cost estimates?

<u>ANSWER:</u> (FY 78 \$ M)	December 1983 SAR
RDTE	210.8
Procurement	1959.1
Total	2169.9

QUESTION: When do you reasonably expect to get all of DIVAD's problems worked out?

ANSWER: Future SGT YORK testing, training and fielding will undoubtedly uncover problems that must and will, be worked out. Currently, there are four system problems/areas that require further testing.

The Identification Friend or Foe (IFF) feature has not worked acceptably on a consistent basis in previous tests. The Design Verification Test (DVT) is expected to show that the IFF problem has

been resolved. Initial IFF testing during DVT has been successful based on a preliminary review of the data, however, until official DVT test results are available, it would be premature to say the IFF problems has been resolved.

The capability to classify and react properly to an Anti-Radiation Missile (ARM) attack has not been adequately demonstrated. Demonstration of that capability is also expected during DVT.

There is a software problem in the multipath function of the tracking radar that results in reaction time against fixed wing aircraft to be slower (by one to two seconds) than the system specification requires.

Cold weather performance has not been adequately tested. Cold chamber testing will be conducted this summer and fall, and actual cold region testing is scheduled for October 1985 through March 1986.

Other programmatic problems are associated with schedule delays resulting from slippages in production deliveries and in completion of development of Integrated Logistics Support (ILS). The Army expects that production will continue to catch up on the planned recovery schedule which will reduce the slippage progressively to five months by September 30, 1984, two months by September 30, 1985, and to zero by September 30, 1986 (taking into account the revised scope of fire unit production - Insert Number 23). Development of all ILS is expected to be completed by May 31, 1985.

QUESTION: With this program so far behind schedule, why shouldn't Congress at the very least defer the requested fourth year production funding?

ANSWER: Late delivery of the first production fire units has caused a six-month slip in fielding of the SGT YORK gun system. A new delivery schedule developed by the contractor and concurred in by the Army provides recovery to within 13 fire units of the original schedule at the end of the fiscal year 1984 funded delivery period. The Army will reduce the planned fiscal year 1984 procurement by ten percent, or 13 fire units, which will align production funding with the revised delivery schedule. Further, procurement in fiscal years 1985, 1986 and 1987 will be leveled at a rate of 117 fire units per year. This revised program reduces the fiscal year 1984 budget by \$41.7 million and the fiscal year 1985 budget request by \$48.5 million. The program accommodates the early slip in the delivery schedule and establishes a balanced production program that will meet the training and fielding plans of the Army.

TANK ENGINE

Question. The Army has completed its most recent study of the proposal to establish a second producer for the AGT 1500 M1 tank engine; based on the results of this analysis, the Army is recommending the award of multi-year contracts to both AVCO and Garrett. However, the Secretary of Defense has conducted a very preliminary review and does not fully concur with the Army's recommendations. The Secretary, for instance, questions the approach taken by the Army in restricting bids to a 50/50 split buy. He contends that variable quantity bids are needed to generate true competition. Under this alternative approach, the winner might receive up to 75 percent of the business. In acting on FY85 legislation, Congress might therefore decide to direct the

Army to recompile the second source proposal. How long would that take?

Answer. This revised strategy would require completely new price proposals and not updates as utilized this year. Preparation of a revised solicitation, providing adequate time for contractor response and government evaluation, will require a minimum of 120 days.

LHX

QUESTION. The Army is planning to buy about 6,000 LHX helicopters beginning in the early 1990s to replace AH-1, and OH-58 aircraft. These aircraft would be designed to operate under night/adverse weather conditions. The projected unit cost of the LHX is about \$6.0 million in FY85 dollars. The unit cost of the avionics package alone would exceed \$6.0 million in FY85 dollars. How could an estimated aircraft unit cost of \$6.0 million ever be realized?

ANSWER. The night/adverse weather system envisioned for the LHX will be a fully integrated, light weight design using next generation technology and manufacturing techniques. The current government estimates for the entire LHX avionics suite range between 3 to 4 million per aircraft. These estimates have been confirmed by independent industry analysis and give us confidence that in a high production rate, competitive environment, we can achieve our objectives.

CH-47

QUESTION: In addition to the \$10 million purchase price per airframe, how much more money will be needed to bring these CH-47's to a useful configuration, and how does this total price compare with the cost of new production CH-47D's, if one could be produced?

ANSWER: No additional funds will be required. The \$10 million includes funds for engineering change proposals that will bring these aircraft to US Army CH-47C configuration standards. The estimated unit price of a production CH-47D helicopter, in a quantity of 11 aircraft, is \$13.4 million (Fiscal Year 1985 dollars).

CH-47D PROGRAM

QUESTION: How many new production CH-47D is the Army planning to buy? Please provide the annual funding profile through program completion?

ANSWER: The Army Acquisition Objective for the CH-47 is 582. With the 436 CH-47 aircraft planned for modernization, the Army will have a shortage of 146 CH-47D's, and the planned buy is below. The Fiscal Year 1993 buy would be reduced to 49 with approval of the purchase of 11 Agusta CH-47C's in Fiscal Year 1985. As JVX evolves, it also may be considered in the 1990's for medium lift use.

(\$ in Millions)

	FY 89	FY 90	FY 91	FY 92	FY 93
QTY	0	24	24	38	60
FUNDING	150.8	324.0	512.0	603.1	0

ADVANCED CARGO HELICOPTER (ACHXX)

QUESTION: The Army is initiating the development of the Advanced Cargo Helicopter (ACHXX). Please provide a brief explanation of those plans, including R&D funding profile and procurement Plan?

ANSWER: The Advanced Cargo Helicopter design requirements have not been definitized since the demonstration/validation phase is not scheduled to begin until the 1990's.

M1 TANK ENGINE

Question. What direction has DoD given the Army and what is the Army planning to do in fiscal years 1984 and 1985 concerning the establishment of a competitive second source of production of the AGT 1500.

Answer. OSD supports second source. Both the Army and OSD continue to seek Congressional support for a second production source.

ARMOR/SURVIVABILITY UPGRADE

QUESTION: Provide a description of the Army's plan to upgrade the survivability of each of the M113 family of vehicles (by type) to include required funding by year.

ANSWER: To begin the program, the Army proposes to use \$12.8 million of the funds provided for M113s in Fiscal Year 1984 to procure approximately 50 M113A3 Armored Personnel Carriers. This new procurement will complete the necessary engineering for production of survivability upgraded vehicles and will provide an opportunity to debug this new equipment before starting a major depot program. Concurrently with procurement of the new carriers, the Army will enter a contract for development of the technical data necessary to procure modification kits and to tool up the depots for a sustained modification program.

A reprogramming action is currently in process requesting transfer of \$9.5 million in Fiscal Year 1984 procurement funds to RDT&E to develop an applique armor kit for the carrier family, and to improve spall suppression technology. It is anticipated that the development work will be completed during 1986, in time to have provisions made on the upgraded vehicles to accept the bolt-on applique armor. It is expected that an additional \$1.0 million in Fiscal Year 1985 RDT&E funding will be required to complete testing of the selected armor.

The upgraded M113s will be type-classified as the M113A3 Armored Personnel Carrier, and will include KEVLAR spall suppression liners, armored external fuel tanks, RISE power, and mounting provisions for adding the bolt-on armor kits to the vehicles when the situation requires the added protection levels. Once the design of the armor installation is frozen, the armor attachment feature will be added to all M113 family vehicles sent through depot for overhaul or modification regardless of whether or not they are scheduled to receive the other survivability upgrades. This will give added flexibility to the field to add armor to any individual vehicle or to remove it from inoperative vehicles for installation on others.

The Army is evaluating which carriers should receive the complete survivability upgrade and will propose an affordable program once a determination on the numbers and schedule has been made. The modification program will compete with other requirements for funds.

Attack Helicopter Requirements

QUESTION: The committee understands that the Army's requirement for Attack Helicopters (AH-1S and AH-64) is 2307. The approved program is 515 AH-64's and 1101 AH-1S's. With the LHX program about to get underway, how is the Army planning to fill its Attack Helicopter requirement in the 1990's with LHX/SCAT, AH-1S and AH-64?

ANSWER: The total Army Attack Helicopter requirement through 2000 is 2209 based on a high-low attack mix. The high portion is computed at 1206 and planned to be filled with the AH-64 or an equivalent aircraft.

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Current plans are to use the LHX-SCAT to fill this requirement. The number of 1101 AH-1S's is not a requirement but represents the number of AH-1S's currently on hand. The AH-1S will be used to fill shortfalls in the attack fleet through 2000.

CH-47

QUESTION: In addition to the \$10 million purchase price per airframe, how much more money will be needed to bring these CH-47's to a useful configuration, and how does this total price compare with the cost of new production CH-47D's, if one could be produced?

ANSWER: No additional funds will be required. The \$10 million includes funds for engineering change proposals that will bring these aircraft to US Army CH-47C configuration standards. The estimated unit price of a production CH-47D helicopter, in a quantity of 11 aircraft, is \$13.4 million (Fiscal Year 1985 dollars).

PATRIOT MISSILE SYSTEM

QUESTION: With respect to the recent U.S.-German agreement on NATO air defense, which program years are the 14 U.S.-funded Patriots, the 14 German FMS Patriots and the 4 systems for the Netherlands Air Force to be delivered?

ANSWER: Tentative Patriot equipment deliveries by year are shown below:

	FY	86	87	88	89	90	91	92	TOTAL
DUTCH		1	1	1	1				4
FRG FMS		0	1	3	1	2	4	3	14
FRG-US Provides		0	2	3		1	2	6	14

QUESTION: What changes in the Army procurement schedule must be made to accommodate these and any other FMS cases within the existing production capacities, to include the 1985 program?

ANSWER: By using \$46.1 million of the \$200 million in Fiscal Year 1984 funds for additional facilitization the German and Dutch Foreign Military Sales (FMS) Programs can be procured on top of the quantities the United States plans to buy. The United States planned program is for 12 fire units per year, FMS buys will increase the number of fire units procured to 15 per year.

QUESTION: Last year Congress provided \$200 Million to the Air Force for the purpose of providing NATO air and air base defense in anticipation of the recent agreement.

What agreement have the Army and Air Force reached on funding PATRIOT production for the Germans?

ANSWER: It is the intent of the Army and the Air Force that the \$200 Million in FY 84 funds be used by the Army to help procure PATRIOTS for Germany. These funds will buy the initial 3 Equipment Sets which will be used by Germany for their early configuration and integration efforts as well as forming their training base requirements.

MULTIPLE LAUNCH ROCKET SYSTEM

QUESTION: How much more savings have there been on the Multiple Launch Rocket System (MLRS) multiyear contract than originally estimated? What are they by year? Can they be applied to the 1985 advanced procurement requirements?

ANSWER: There was a \$15.9 million savings above the original estimate. The savings by Fiscal Year are as follows; FY 84 \$.5 million, FY 85 \$2.5 million, FY 86 \$3.3 million, FY 87 \$3.1 million, FY 88 \$3.8 million, and FY 89 \$2.7 million. These funds are not available for 85 advanced procurement.

REMOTELY PILOTED VEHICLES (RPV)

QUESTION: It is not clear what the operational differences are between the target acquisition, designation, reconnaissance and artillery adjustment capabilities of the RPV and the OH-58D (AHIP) reconnaissance helicopter which costs significantly more. The main difference seems to be that the RPV works the area more than 5 kilometers in front while the OH-58D works up to that point. What prevents the RPV from doing some or all of the mission of the OH-58D scout helicopter?

ANSWER: The RPV and AHIP are complementary, not competitive systems. The AHIP functions are currently somewhat broader than those for the RPV and include coordinating and leading attack and air cavalry team missions, conducting reconnaissance and security, gathering battlefield information, distributing attack helicopter fires, designating targets, adjusting close-in artillery, selecting attack helicopter battle positions, providing local security, and coordinating with ground commanders. The AHIP is oriented towards the threat in Zone 1, the area which extends forward of the friendly front line of troops (FLOT) out to approximately 5 km. The AHIP will observe the threat while positioned just behind the FLOT, and

will acquire targets at horizontal stand-off distances with its mast mounted sight sensors. The RPV is optimized for the division target acquisition and designation mission beyond ground line of sight and normally beyond Zone 1, out to the depth of artillery [deleted.] The RPV is not optimized to perform critical AHIP tasks--to effectively command and control and distribute fires for attack helicopters. The RPV was examined as an alternative to the scout helicopter in the Advanced Scout Helicopter and the AHIP Cost and Operational Effectiveness Analyses (COEA). It was determined that the RFV, which primarily looks down, rather than out, was not as effective in Zone 1, due to the air defense threat. The RPV is an excellent system for looking beyond Zone 1 and complements the AHIP by letting the commander know in advance the size, composition, and route of enemy elements headed towards Zone 1.

1985 Multiyear Procurement Programs

Question. The Army has proposed three major programs for multiyear procurement -- a follow-on to the current UH-60 Black Hawk multiyear, CH-47D modernization program and the TOW II missile.

During the recent budget reviews, has any of the multiyear funding for any of these programs been changed so that the Army could not execute the multiyear programs as presented to Congress? If so, what are the details?

Answer. Only one of the three programs questioned, the TOW II Missile, was proposed for a FY85 budget reduction. A FY85 reduction of \$120 million and 12000 missiles was submitted to Congress during the first week of May 1984. The impact on the savings for the multiyear contract is still under assessment and will be provided by the end of May, 1984.

PRIOR YEAR M1 TANK FUNDING

QUESTION. The past two years the Army has found significant amounts of prior year money to partially fund the extra tanks authorized. In that context, two new cost elements totaling \$95.2 million have appeared in your 1984 program which were not budgeted in 1984--Special Projects and TRACE--and of which only \$5.5 million is needed in 1985. What are those funds for and why should they not be transferred forward to pay for the regular 1985 program?

ANSWER. The 31 January 1984 Abrams budget identifies the following new cost elements:

	<u>FY84</u>	<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>TOTAL</u>
Special Project	30.1				30.1
Excess Funds	45.3				45.3
M1E1 TRACE-P	-	5.5	6.5	7.0	19.0
TOTAL	75.4	5.5	6.5	7.0	94.4

The project is funded to meet a recently identified priority user requirement associated with the improved M1 and M1E1. The M1E1 TRACE-P line reflects funds based on the program's assessment of risk in introducing the M1E1 tank, with initial roll-off in August 1985. Finally, the Abrams Program Manager previously identified the \$45.3 million excess in FY84, which he recommended for reprogramming to FY85 to increase that year's tank buy quantity.

Question. The Army reduced the 1985 120 millimeter tank gun ammunition request of \$136 million by 25 percent from last year's production. Is there a problem with the ammunition and what impact will this lower funding have on the fielding of the 120 millimeter version of the M-1?

Answer. All of the 120mm tank gun munitions are expected to be type classified by the end of fiscal year 1984. Dispersion problems with the kinetic energy round (XM829) have been experienced; however, a dispersion improvement program is on-going and resolution of the problem is expected to be demonstrated during July 1984. The reduced level of funding requested in fiscal year 1985 is not expected to have any impact on the fielding plans for the M1E1 tank.

TACTICAL COMMUNICATIONS PROGRAMS

You are requesting \$110 million for a new \$4.3 billion program called Mobile Subscriber Equipment.

QUESTION: What is the program and how does it tie in with the Joint Tri-Service Tactical Communications Program?

ANSWER: The Mobile Subscriber Equipment (MSE) system is a radio-based communications system which provides both mobile and stationary users automatic, secure telephone and data service. It combines the mobility inherent in a single-channel radio with the discrete address capability associated with a telephone system. It is an integral part of the Joint Tactical Communications Program.

I understand that this new equipment will replace the TRI-TAC equipment at Corps and division with much of it moving to the theater.

QUESTION: What are your requirements now for TTC-39's and TYC-39's and how much will be saved?

ANSWER: The MSE was always the TRI-TAC equipment for the division. The Army now plans to field MSE in the Corps as well as the divisions; the other TRI-TAC equipment will continue to be fielded at echelons above Corps (theater). The revised Army Acquisition Objectives for TRI-TAC equipment and the resultant procurement savings are indicated below. Costs are included for the modification of the AN/TTC-39 which eliminates the need for the CNCE.

SAVINGS RESULTING FROM DECISION TO FIELD MSE IN CORPS

PL#	ITEM	MAY 83 AAO	FEB 84 AAO	REDUC- TION	SAV- INGS (\$M)
28	CNCE (I)	157	0	157	1099
	CNCE (III)	493	0	493	3205
29	AN/TTC-39	173	55	118	590
30	SST	5203	8900	(3697)	-166
	MTCC	698	75	623	997
31	DGM (ROLL)	62622	19865	42757	935

**SAVINGS RESULTING FROM DECISION TO
FIELD MSE IN CORPS**

PL#	ITEM	MAY 83 AAO	FEB 84 AAO	REDUC- TION	SAV- INGS (\$M)
32	AN/TRC-173	535	260	275	127
	AN/TRC-174	1472	375	1097	549
	AN/TRC-175	79	65	14	10
	AN/TRC-178	135	0	135	94
33	AN/TRC-170 (2)	16	18	(2)	-6
	AN/TRC-170 (3)	195	195	-	-
34	MAINT SYSTEM	744	160	584	58
35	SB-3865	2723	610	2113	528
	AN/TTC-42	670	150	520	624
36	CSCE	54	36	18	36
37	DNVT	52000	32000	20000	20
38	ANDVT	1000	1000	-	-
39	TDF	3300	0	3300	264
40	LDF	0	3300	(3300)	-50
TOTAL					\$8914

TOTAL SAVINGS FROM REDUCTIONS	\$8914M
AN/TTC-39A COST (R&D + MOD KITS)	- 104M
MSE FOR CORPS	-2760M
POTENTIAL INTERFACE COST	- 250M
NET SAVING (THRU 1999)	\$5800M

QUESTION: Since this will be an "off-the-shelf" procurement, who else is currently using the specific equipment proposed for procurement and what has been their experience with it?

ANSWER: Since this is a competitive procurement, the Army can not identify in advance all possible offerors. Proposals may be submitted by many offerors to include several contractors whose systems were included in the survey of available systems. Potential candidate systems include (but are not limited to) Ptarmigan, RITA, and commercial cellular systems. Contractors may also propose variations or minor modifications of these basic systems. The specific details of the proposals will not be known until final submissions are made in response to the Request for Proposal.

The systems identified above are in various stages of fielding and operational use. The French and Belgian Armies have fielded and are using the RITA system. The Ptarmigan System is in the final stages of user trials in preparation for fielding in the British Army. Commercial cellular systems are being used in several metropolitan areas to include the Washington DC area.

QUESTION: What tests will be made to insure full interoperability with our NATO allies' communications nets?

ANSWER: Contractors are required to identify and demonstrate during the selection process any

interoperability inherent in their system. They are also required to propose (as a mandatory priced option) full analog and digital interoperability as specified in approved NATO standardization agreements (if not included in basic system). Full testing of the system including interoperability will occur during production acceptance testing prior to payment of the contractor.

QUESTION: In light of your experience with other "off-the-shelf" programs such as the 10-ton truck, DIVAD gun and the 9mm handgun, what justification is there for rushing into procurement particularly, if it could involve teaming arrangements with European producers.

ANSWER: The Army has an urgent requirement to upgrade its switched tactical communications network, especially for the divisions. Currently fielded equipment can not adequately support the force under the Airland Battle concept. Major upgrades have not been allowed since the 70's while waiting for the development and fielding of the TRI-TAC system. The MSE has been and still is the TRI-TAC system for the division and is now the system for the Corps as well. Proceeding with this acquisition approach enables rapid fielding of this capability while also resulting in both personnel and investment savings. The Army could proceed with a development program to get the "perfect" MSE system, but our market survey indicates that adequate systems exist. Trying to develop the "perfect" system would only delay fielding and result in increased cost. Also with the rapid technological advances in communications-electronics, there will always be something better available in a few years. If we keep waiting for "perfect" systems, we will never get anything fielded.

All known teaming arrangements involving European contractors have a US company as the prime contractor. The contract would be signed with the US contractor.

QUESTION: Describe the warranty provisions envisioned for the proposed procurement.

ANSWER: The warranty requires the contractor to guarantee for a period of two years or six months after the handoff to a field unit, whichever comes first, that hardware is designed and manufactured so as to conform to the stated performance requirements of the contract. Software is to be guaranteed for the life of the software release or a period of one year, whichever is shorter. The contractor is required to repair or replace failed items or correct software errors at his expense. Combat damage is excluded.

ARMY HELICOPTER IMPROVEMENT PROGRAM

QUESTION: What is the contract target unit flyaway cost and how much above that will the first lot of 16 helicopters be?

ANSWER: The Army Helicopter Improvement Program (AHIP) development contract does not include a unit flyaway cost target.

The Project Manager's estimate for the average flyaway cost of the programmed 578 OH-58D's is \$2.2 Million in Fiscal Year 1984 dollars (includes both contractor and government furnished equipment). The Project Manager's estimate for the average flyaway cost for the Fiscal Year 1984 initial production of 16 aircraft systems is \$7.7 Million (includes contractor and government furnished equipment). The large difference between average program flyaway cost and first year flyaway cost results primarily from incorporation of production tooling/test equipment for sustained production rate of 10 aircraft systems per month in the first year production costs, the lack of any learning curve experience and the low rate of initial production.

QUESTION: What is the Army doing to prevent future contract costs from going up once production is out from under the initial two fixed price options?

ANSWER: The Army Helicopter Improvement Program (AHIP) development contract includes a Design to Unit Production Cost (DTUPC) goal which establishes a baseline for managing production costs during the development phase. Although the DTUPC goal is optimistic, the Project Manager and contractor and subcontractor management are committed to achieving the goals during the production program. Actions in progress to maintain the DTUPC include qualification of additional second source vendors to provide increased competition during production, design simplifications to eliminate costly design features that provide only marginal improvement in actual tests, identification and elimination of cost drivers down to the vendor level, and manufacturing technology programs to evaluate alternate, less expensive materials.

The Fiscal Year 1984 and 1985 production contracts are planned as fixed price incentive contracts with full cost reporting. This will provide full government visibility of actual production costs, thus alerting the government to cost problems prior to subsequent contract awards and providing an actual cost data base for should cost analysis of subsequent production proposals.

In addition, it is the Project Manager's objective to establish hardware ceiling prices for the third production lot (Fiscal Year 1986) as a part of the Fiscal Year 1984 low rate initial production contract.

These efforts are expected to contain production costs within the programmed funding levels.

U.S. CHEMICAL DEFENSE POSTURE

Question. This year's chemical defense budget is \$1.1 billion, and the Army has \$900 million of that request.

Some \$329 million of the Army request is for medical and chemical defense R&D programs. But we have already put a sizeable amount of R&D into these areas over the past three years.

How has our chemical defense posture improved from this large R&D investment?

Dr. Sculley. Chemical defense R&D in the 1970's was limited in scope and funding. The effort to correct the imbalance between the U.S. and Soviet Union chemical warfare capabilities began in earnest in FY 1980 and first received the

increased R&D funding requested to begin fully addressing the imbalance in FY 1982.

The chemical defense R&D program began several development efforts in FY 1980 which were based on available technologies and would provide mid-term improvements in U.S. chemical defense capabilities. In FY 1982, an expanded chemical defense technology base program was undertaken to develop new technologies; reduce the performance degradation imposed by current chemical defense technologies; and provide longer-term, greater improvements in U.S. capabilities.

The Army program to correct the imbalance in chemical warfare capabilities recognized R&D lead times. The initial emphasis of the Army program was on procurement of on-the-shelf materiel, training, and doctrinal and force structure changes to achieve near term payoffs.

Chemical defense procurement through FY 1983 was essentially limited to additional buys of standard Army materiel. One new item of chemical defense materiel will enter procurement in FY 1984, two in FY 1985, and four more in FY 1986. Chemical defense procurement funding will increase from approximately \$50 million in FY 1984 to over \$100 million in FY 1986. The FY84 procurement includes initial acquisition of the M17 Lightweight Decontamination System that will provide each battalion in the Army and Light Division chemical companies a much improved decontamination capability.

Additionally, many chemical defense items such as decontaminants and kits, the new protective clothing and M13 Decontamination Apparatus are acquired within Operations and Maintenance or Army stock fund monies and not included in the procurement funding.

In summary, most chemical defense items have been in R&D for some four years and, as planned, the initial payoffs of the R&D program will be seen beginning in FY 1985.

Question: How would you describe our chemical readiness posture in Europe, particularly at our Pershing sites?

Dr. Sculley. A detailed report is currently being prepared and will be provided by 1 Jun 84 as directed in Report 98-292.

Question: Will the R&D funds be used to improve our decontamination capability?

Dr. Sculley: Yes. In the Five Year Defense Program PE's 63721 and 64725 Chemical Biological Protective Materiel, contain \$60 million for decontamination R&D, over 30% of the total.

Besides the M17 mentioned above, the procurement program includes the XM16 Jet Exhaust Decontamination Apparatus and XM18 Skid Mounted Decontamination Apparatus.

Anti-Tactical Missile

The ATM program involves upgrades to the [deleted]
[D] to give them an anti-tactical missile capability.

Question: If what you propose to do is upgrade existing surface-to-air missiles to give them an anti-missile capability, why can't the Army provide us with an estimate of total development cost for the program?

Answer: The overall Anti-Tactical Missile Program includes passive defense measures and active defense measures which address electronic warfare, counterstrike and terminal defense against the tactical missile threat. Present anti-tactical missile efforts concentrate on upgrading existing systems while determining the requirements for a long-term solution. Near-term efforts to upgrade [Deleted] are being evaluated to develop non-nuclear kill capacity for tactical missiles. Estimated development costs for these improvements are \$280 million through 1990; however, the long-term requirements are still being analyzed. Costs for the long-term program cannot be estimated until those requirements are established.

Question: Are you considering use of the [deleted] in this program?

Answer: Interface with the Navy on their [deleted] has been long standing. Extensive coordination during the [deleted] development resulted in data exchange on all equipment. As the ATM program progresses, this exchange of data will continue and applicable technologies such as in [deleted]

Question: Can you upgrade [D] to give it an ABM capability?

Answer: The ATM program is not a counter to strategic ballistic missiles but it is being developed to counter the tactical missile threat. Upgrades to the [deleted] are to provide it with a better capability against the increasingly sophisticated third generation of Soviet tactical missiles that includes cruise missiles. This is not a strategic anti-ballistic missile upgrade, nor does the Army plan any developmental effort for [deleted].

SADARM

QUESTION: We also understand that the 8-inch Sense Destroy Armor (SADARM) munition program is being scrubbed. But does that affect the 155mm SADARM program? Why not?

ANSWER: A request for continued funding of the 8-inch SADARM program is included in the FY 85 President's Budget. Because of common technology, termination of 8-inch SADARM development would cause both time and dollar increases to the 155mm SADARM program. In terms of estimated unit production cost, approximately 70 percent of SADARM components are common to both munitions. Approximately 90 percent of the Manufacturing Methods and Technology (MMT) studies planned for 8-inch SADARM are directly applicable to the 155mm SADARM.

ANTI-ARMOR MASTER PLAN

QUESTION: When will the Army submit the anti-armor master plan requested by the appropriations conference?

ANSWER: Army concurrence, with comments, on the draft DOD Anti-Armor Master Plan was provided to OSD in March 1984. Final coordination from all Services has just been completed. The

Master Plan was forwarded to the Armed Services and Appropriations Committees of both Houses of Congress on 16 May 1984.

QUESTION: Don't we have too many anti-armor programs in R&D?

ANSWER: Research and development programs are crucial to our efforts to develop and maintain a qualitative advantage over threat armor. Given the magnitude of this threat, these programs are a wise investment.

JOINT TACTICAL MISSILE SYSTEM

QUESTION: Would an extended-range MLRS be less expensive than a derivative of the Lance, the T-22?

ANSWER: Based on initial comparisons, indications are that an extended range Multiple Launch Rocket System (MLRS) would be cheaper.

QUESTION: Should the Army restructure the JTACMS program, would the date of initial operating capability slip?

ANSWER: Until the Army requirement is determined, it is unknown if the IOC will slip.

JTACMS/JSTARS PROGRAM

QUESTION: Do you still support your JSTARS radar budget request under these circumstances? Couldn't the radar program be phased to match the JTACMS?

ANSWER: There is a perception that JSTARS is primarily a target attack system. This is not true. The battle management function is at least of equal importance, particularly in support of maneuver. Regardless of JTACMS fielding plans, JSTARS is urgently required, not only for battle management, but also for target acquisition to support cannon and rocket indirect fires.

BATTLEFIELD NUCLEAR WEAPONS

QUESTION: General Rogers testified before the House Armed Services Committee earlier this year that procurement of the 155mm nuclear round is one of his highest priorities. He would like the new round procured and deployed in Europe, but without its enhanced radiation module, which would be retained in the U.S. The Army has requested R&D funds to continue the 155mm program. Will you be coming back next year with a request to enter production for the 155mm nuclear round?

ANSWER: The Army and the Defense Department strongly believe there is a requirement for a modern 155mm nuclear projectile

[deleted].

- The October 1983 Montebello Decision (NATO nuclear stockpile reduction and modernization statement)

[deleted].

With the consent of the Congress, the Army intends to complete the R&D program for the Improved 155mm Nuclear Projectile and to begin production of these projectiles. The exact schedule for funding the production program

depends on detailed planning involving the Department of Energy, but current schedules estimate
[deleted].

QUESTION: Does the Army want Congress to resume this program to complete research and development and enter production?

ANSWER: Yes - the Army and Defense Department believe this program is required as a key deterrent to war and therefore support the need to complete R&D and enter production for the Improved 155mm Nuclear Projectile.

QUESTION: Most NATO cannons are 155 millimeter. What will happen to NATO's battlefield nuclear capability if the Army doesn't get the new 155 millimeter round?

ANSWER: There would soon be no 155mm nuclear capability in NATO. The current 155mm nuclear round, the W48 is obsolescent and must soon be replaced. The W48 has a'

[deleted].

The

W48 has already been

[D] and is not certified for use with NATO's modernized 155mm howitzers (SP/FH70).

NATO's remaining Short-Range Nuclear Forces are placed at increased risk without an effective 155mm nuclear system, since the number of possible Short-Range Nuclear Forces delivery systems would decrease from [deleted]. The Soviet targeting problem would be considerably simplified and the vulnerability of the remaining Short-Range Nuclear Forces greatly increased if there was this degree of reduction in the number of nuclear capable systems.

Without the W82, the deterrent effect of NATO's nuclear forces would be decreased and NATO's ability to execute its strategy against a Warsaw Pact attack would be reduced. The Soviets have been developing nuclear artillery since the mid-70's. Now, they are deploying three new nuclear cannons to East Europe. The Warsaw Pact has now surpassed NATO in the overall number of Short-Range Nuclear systems-an area where NATO traditionally had a numerical lead. By 1990, they will dominate and hold the initiative for battlefield nuclear operations if the NATO 155mm capability is eliminated because the US does not fund W82 nuclear projectile production.

JOINT TACTICAL MISSILE SYSTEM

QUESTION: Last year a floor amendment to the Appropriations Bill by Senators Nunn and Kennedy prohibited spending Fiscal Year 1984 funds on nuclear warhead for Joint Tactical Missile System (JTACMS). Does the Army intend to pursue a nuclear warhead development program for JTACMS?

ANSWER: No.

TACTICAL DIRECTED ENERGY PROGRAMS

QUESTION: Dr. Sculley, in the past few years, the Army's major tactical directed energy programs --- Roadrunner and the Forward Area Laser Weapon Defense---have been cancelled.

Can you bring us up to date on what the Army is now doing in

the tactical directed energy area? What kind of technology base efforts are we conducting?

ANSWER: The Army remains very much interested in the potential of directed energy weapons for tactical applications. The Army directed energy technology effort has been restructured to focus on the critical areas of target acquisition, tracking, and high precision beam stabilization/pointing. This refocusing has been implemented to address those areas which are critical to future Army decisions on the use of directed energy technology in satisfying tactical requirements. The Army is coordinating closely with the other services, DARPA and the National Laboratories who have aggressive programs to develop laser device technology; we support those efforts that address Army peculiar requirements.

QUESTION: Where are the Soviets in this field?

ANSWER: The Soviets have a very active laser program.

[deleted].

Army Modernization and Manpower

QUESTION. In your testimony it says that we can use high technology to reduce manpower and costs. Can you cite specific examples where this has already occurred?

ANSWER. Yes several examples of these systems are the Patriot and Pershing II. The fielding of Pershing II in Europe resulted in an overall savings of military manpower of 344 spaces. Once Patriot fielding is completed the Army will achieve a savings of approximately 10,000 military spaces thru the inactivation of Nike-Hercules and some I HAWK units.

QUESTION. What are the manpower reductions associated with new technology? Please provide your response by individual weapons system.

ANSWER. High technology, when applied to new weapons and support systems, permits the Army to increase effectiveness and survivability in battle and achieve manpower savings, where possible.

For example, Mobile Subscriber Equipment (MSE), a new system scheduled for initiation of procurement in June 1984, will be used at Corps and Division levels to meet the tactical communications needs for the area system. When MSE is fully fielded in 1992, a savings of 5000 signal personnel is projected. Another system which will yield manpower savings when fielded is the Position and Azimuth Determination System (PADS). PADS is an automated, self-contained inertial surveying system for the field artillery. Surveys that normally take the conventional eight-man surveying party several days will be accomplished by a two-man PADS party in a matter of a few hours.

QUESTION. How will manpower reductions impact on US troop strength in Europe?

ANSWER. Consistent with a level active end strength of 780,800, the Army has programmed a steady end strength in Europe

of about 217,000 soldiers. This European end strength incorporates refinements associated with Division 86 structure, implementation of current modernization programs, and other initiatives.

ARMY LIGHT DIVISION MANPOWER SAVINGS

QUESTION: A central element in the future Army is the new light division. What are the manpower and cost savings associated with a new light division?

ANSWER: A primary objective in the development of the new light division is to do more, with a fixed investment in terms of manpower and dollars. The new division will result in a force with a greater tooth-to-tail ratio than any of our other Army divisions and a capability to deploy three times faster than existing infantry divisions. The manpower and cost savings achieved by a smaller division are being applied against an additional division and corps-level support units within the force structure. Given that these savings must be applied to the activation of the additional division and corps-level support units to maintain combat power and supportability, there will be no Army-wide savings from this restructuring, but increased deployability.

ARMY LIGHT DIVISION SKILLS CHANGES

QUESTION: Please provide the changes in combat arms and combat support skills that will result from the creation of a light division?

ANSWER: The specific designs for the new units have not been finalized, however the indications are that the design of the new light division will have very little change in the kinds of Military Occupational Specialties within the division, but rather a change in the mix of those skills. The greater tooth-to-tail ratio of the division will mean fewer supporting skills and more fighters. The austere design of the division will also mean greater cross-training in areas as diverse as vehicle maintenance and weapon systems proficiency. Although the new light division will have a higher concentration of personnel with Ranger qualifications, this qualification does not affect individual skill mixes.

ARMY LIGHT DIVISION END STRENGTH REQUIREMENTS

QUESTION: Does this have an impact on the Army's end strength requirement?

ANSWER: There is no impact on the Army's end strength. By design, the new light division was developed within the constraint of not exceeding the budgeted and programed level Army end strengths. Savings in manpower in the first new light division that is formed will assist in supporting activation of an additional division and certain corps support units to achieve greater effectiveness and sustainability. Thus we achieve additional active division combat unit numbers within a constant end strength.

17TH ARMY DIVISION

QUESTION: What will be the combat arms skill requirements associated with the 17th Army division in fiscal year 1985 and through the five year defense plan?

ANSWER: The seventeenth active component division will be activated early in FY85. The division will be filled over a period of several years as spaces become available from other related force structure actions. During FY85 only 1300 spaces are associated with the activation of the new division. No combat arms skill requirements will be generated during FY85 by this activation. Those units to be activated in FY85 include only headquarters, division artillery, and division support units. Forces Command has been tasked to develop a concept plan for the activation of the FY86 and FY87 increments of the seventeenth division. That plan is due to Department of the Army about the end of September 1984. Until that plan arrives, and is evaluated, no information will be available on combat arms skill requirements beyond FY85.

Production Rates

QUESTION: Provide for the record for the major procurement accounts the minimum sustaining, minimum economic and maximum production rates.

ANSWER: The following information on production rates is provided:

SYSTEM	ECONOMIC PRODUCTION RATES	
	MINIMUM	MAXIMUM
HELLFIRE Missile	4200	7560
M1 Tank	720	1080
UH-60/EH-60A	96	168
AH-64 Attack Helicopter	72	144
MLRS Launcher	72	120
STINGER	1800	4800
TOW II	12000	21600
PERSHING II	60	84
PATRIOT	440	920
DIVAD	72	144
COPPERHEAD	5400	8400
M88A1 Recovery Vehicle	240	288
M109A2/FAASV	480	600
M9 ACE	348	480
Bradley FVS	540	660
M198 Howitzer	120	420

The minimum sustaining rates and the maximum production rates for the above weapon systems are not available at this time. Army is currently seeking this data from the appropriate Army commands and project managers. Army expects the data to be available in July 1984.

ADVANCED PROCUREMENT FUNDING RATES

QUESTION: For the major procurement programs requiring advance procurement, provide for the record a display for the years 1982-1986 showing the gross P-1 cost, the advance procurement credit for that year, and the percent of that year's procurement costs advanced funding. If there is a trend of increasing percentages, justify that trend. What would be the impact of adjusting the advance procurement funding rates to the historical average of the last 5 years?

ANSWER: The attached table displays the gross P-1 costs, the advance procurement credit for that year, and the percent of the P-1 cost represented by the advance procurement credit.

Advance procurement funding rates cannot be based on a historical average of the last five years. The requirements for advance procurement funding are unique for each system and various factors such as Economic Order Quantities, number of long lead items, lead times, future quantities, and production methods determine the amount of advance procurement funding required for each system each year.

	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>
<u>APA</u>					
<u>EH-60A</u>					
Gross P-1			141.0	203.2	179.6
Adv Proc Credit			-20.1	-30.1	-23.8
%			14.2%	14.8	13.3%
<u>AH-64</u>					
Gross P-1	488.7	752.8	1243.8	1260.8	1199 "
Adv Proc Credit	-50.8	-64.4	-113.7	-61.6	-91.0
%	10.4%	8.6%	9.1%	4.9%	7.6%
<u>UH-60A</u>					
Gross P-1	463.0	516.8	455.3	475.6	480.0
Adv Proc Credit	-24.9	-102.9	-152.3	-142.6	-1144.6
%	5.4%	19.9%	33.5%	30.0%	30.1%
<u>CH-47 MYP</u>					
Gross P-1		241.2	246.0	455.9	423.0
Adv Proc Credit		-65.0	-84.6	-168.9	-119.4
%		26.9%	34.4%	37.0%	28.2%
<u>AH1P</u>					
Gross P-1			153.3	207.7	183.9
Adv Proc Credit			-28.4	-50.5	-60.1
%			18.5%	24.3%	32.7%
<u>MIPA</u>					
<u>MLRS</u>					
Gross P-1			423.5	459.2	568.6
Adv Proc Credit			-11.7	-55.2	-71.7
%			2.8%	12.0%	12.6%
<u>WTCV</u>					
<u>Bradley</u>					
Gross P-1		823.0	835.1	1027.0	1259.9
Adv Proc Credit		-59.0	-49.2	-29.6	-59.0
%		7.2%	5.9%	2.9%	4.7%
<u>M-1 Tank</u>					
Gross P-1	1409.7	1674.3	1753.9	1760.2	1914.2
Adv Proc Credit	-133.9	-212.0	-368.4	-290.8	-289.4
%	9.5%	12.7%	21.0%	16.5%	15.1%
<u>DIVAD</u>					
Gross P-1	321.2	526.4	566.4	538.6	432.1
Adv Proc Credit	-40.0	-16.3	-29.8	-22.8	-12.9
%	12.5%	3.1%	5.3%	4.2%	3.0%

QUESTIONS SUBMITTED BY SENATOR STENNIS

ARMY MODERNIZATION

QUESTION: The Army has announced that it plans in 1985 to begin the formation of a 17th division in a new light, 10,000 man configuration. It is also reported that the Army plans to convert the 7th Infantry Division to this same new light configuration.

What R&D and procurement costs result from these decisions? Please provide costs by year 1985-1989.

ANSWER: Exact plans for procurement and for fill of equipment for the new division, and for the conversion of the 7ID, are under study by the Army. Since most of the equipment for the new divisions is common throughout the Army, it is likely that equipment requirements will be filled from already planned procurement or by redistribution from other units for FY85. The total impact of any increases to procurement will be reflected in the Army's FY86 budget request.

QUESTION: Are there offsetting savings resulting from the decision to form "lighter" divisions? Presumably, the decision to form a division with less heavy equipment would affect the Army's total equipment requirements. How are these changes reflected in Army procurement plans?

ANSWER: Although it is true that the light divisions will have substantially less heavy equipment than current divisions, much of the heavy equipment will be retained in the force structure and used for Corps augmenting units. For example, the tank and mechanized infantry battalions of the 7ID, while not part of the division's force structure, will be retained as Corps units. This will facilitate augmentation to the light division when deployed to an environment requiring more anti-tank capability. The net results on procurement plans are under study by the Army and will be reflected in our FY86 budget submission.

HTLD

QUESTION: The Army has also stated that it plans to convert the 9th Infantry Division into a high technology light division. What is the purpose of the proposed conversion? What are the costs that result from this decision?

ANSWER: The 9th Infantry Division has recently been redesignated as the 9th Infantry Division (Motorized) to more accurately reflect the division's mission and configuration. The mobility and deployability of this motorized division enhances the Army's flexibility in responding to diverse world-wide threats. The 9ID(MTZ) will continue to have a dual mission of readiness while serving as the Army's high technology testbed for light forces initiatives.

The costs related to the transitioning of the division to its motorized configuration include: \$20.3 million for procurement of fast attack vehicles, deception devices and the mobile heavy mortar; \$58.8 million in RDT&E for development of such items as AWACS interface, smart munitions, communication devices and an indirect sighting system; and \$6.4 million for equipment support. These costs are exclusive of the operation of the Army Development and Employment Agency (ADEA). Many of the above items are being considered for Army-wide use.

ADDITIONAL COMMITTEE QUESTIONS

GAO AMMO QUESTIONS

Industrial Base

Q. In February 1983 GAO issued a report titled "Observations Regarding the Ammunition Production Base." This report highlighted several problems with the base and OSD concurred with the GAO observations. What actions has the Army taken to address these problems?

A. - The specific problems highlighted by the 1 Feb 83 GAO Report titled "Observations Regarding the Ammunition Production Base" included:

- o Mobilization capacity shortfalls and imbalances.
- o Existing facilities could not be reactivated as quickly as desired because of equipment voids and deficiencies.

The Army has taken several actions in addressing these problems:

- o The Army has completed and provided a report to the Congressional Committees on Armed Services and Appropriations of the Senate and the House of Representatives on the status of production equipment, evaluation of the capability of facilities to produce the quantities and types of ammunition requested in the Five Year Defense Plan, and an estimate of the cost of developing and maintaining an ammunition production base capable of satisfying the anticipated production requirement throughout the remainder of this century. The report included recommendations to the Congressional committees for addressing the ammunition production base problems.

- o The Army completed a series of studies evaluating technology, requirement, and the production base for expanding RDX and HMX capability and will submit recommendations to Congress addressing the critical shortage in the explosive RDX/HMX area.

- o In accordance with Defense guidance, production base sizing for new munitions is planned to meet Five Year Defense Plan requirements on a 1-8-5 basis and balancing of capability is considered.

- o Army has addressed costs required to correct FYDP, surge, and sustainability shortfalls for specific identified critical items in response to Defense guidance. Unfortunately, these corrections are not being accomplished because of a lack of funding.

- o The Army is soliciting mobilization base planning agreements with industry but there are no funded Government facility projects to satisfy only mobilization requirement shortfalls.

- o Existing facilities with equipment voids, production shortfalls, and deficiencies have been identified. The Army continues to correct identified deficiencies of the inactive base which qualify for Operation, Maintenance, Army funding, when available. The Army programmed \$30 million per year for Production Base Readiness Improvement in the POM to correct identified deficiencies, but it did not achieve a sufficiently high priority to be funded.

Q. Do OSD production base investment policies preclude addressing these problems?

A. - Current Defense Guidance does provide the Army an opportunity to address these problems, however, they remain unfunded as they did not compete favorably with other programs.

Industrial Base

Q. We note that modernization and expansion projects seem to be targeted toward active ammunition plants while inactive plants are largely excluded. Please comment.

A. - In the early 1970's funding of the ammunition production base support program was sufficient to allow for systematic modernization, to include inactive plants. Since the late 1970's reduction in the production base program make it possible to only support initial production facilities and expansion in support of the Five Year Defense Program, and modernization, on a limited basis, at active peacetime procurement producers. Initial production facilities are usually site selected in active plants because of economics. Should an inactive plant be activated for a new product, the production cost of the product would bear the burden and overhead costs rather than being allocated over several products. Planned projects which support mobilization requirements usually are deferred to subsequent years because total obligational authority (TOA) does not permit funding a project that does not support current production. If sufficient TOA is provided in the future, modernization and expansion projects at inactive facilities can again be programmed and executed.

Q. We note three binary chemical munition related facilities in the FY 1985 program. Similar facilities were deleted from the FY 1984 program because of a variety of problems. Have those problems been resolved?

A. - The problems noted in FY 1984 were that site selections had not been made and firm cost estimates were not available, except for the Bigeye Metal parts facility. Site selection for the QL facility is scheduled to be completed shortly; reliable cost estimates are available. The Bigeye fill and LAP facility will be at Pine Bluff Arsenal, Arkansas and validated costs are available. In addition, the FY 1985 program is for time sensitive items and not production capability.

Small Caliber AmmunitionInventory Objectives

Q. The Army includes mobilization training requirements in the 90 day depot level inventory objective for training unique items. Is this appropriate? Please explain.

A. It is appropriate to include mobilization training in the 90 day depot level inventory objective. These assets will be used for mobilization while the production base gears up. Without set aside assets mobilization will be constrained.

Q. What is the source for the mobilization training requirements. How current and reliable is the supporting data?

A. Current post mobilization training requirements were last defined in 1981. Subsequent studies were deferred pending implementation of new Army Training Standards and resolution of new reorganization proposals (i.e. Infantry Division (Light) Concept) which will impact on war planning and deployment schedules. Given current planning considerations now in force, post-mobilization training requirements are current and reliable and will be restudied when significant changes in war plans and training standards are implemented.

Q. Should the Army fund mobilization training requirements when it says it does not have enough funds to meet annual peacetime training needs? Wouldn't the funds be better utilized from a readiness standpoint by supporting annual peacetime training needs? Are there situations where days of supply training ammunition exceed those of the combat round?

A. a. Mobilization training requirements should be funded. If mobilization training and peacetime training needs cannot be met due to constrained resources, then risk assessments must be made. When mobilization training and peacetime training compete, the risk assessment dictates that peacetime training be funded.

b. It is possible for training unique ammunition assets to exceed its counterpart service round. For example blank 7.62mm assets might exceed the asset of the 7.62mm ball round.

- Q. Does the Army currently have a sufficient number of weapons in inventory to actually consume the projected amounts of ammunition needed to meet mobilization training and combat needs?
- A. Yes, training and combat needs are based on weapon system densities.
- Q. Training consumption is frequently less than projected requirements and authorizations even though there are sufficient assets in the inventory. Why does this occur?

Inventory Objective

- A. Training usage runs about 95% of quantities authorized. This occurs because of the following reasons:
- (1) Logistical problems (packing, shipping, & storage) in getting authorized rounds to the soldier in the field when and where the ammo is needed.
 - (2) Procurement problems (labor or other production stoppages, Congressional imposed constraints, safety failures or other acceptance testing failures) which impact on logistics.
 - (3) Command problems (failure to comply with training plans, cancellation of joint exercises).
 - (4) Allocation problems (inadequate stocks of high demand munitions, weapon systems in transition in fielding).

Examples of munition lines so affected in FY83:

5.56mm Ball-M16
 .45/.38 Cal. Ball-Handgun
 81mm Mortar
 4.2in Mortar
 2.75in Rocket
 TOW/Dragon ATGM
 CHAPARRAL

Cartridge 5.56mm

- Q. What impact are the current problems with SCAMP having on the delivery and cost of the FY83 and FY84 programs for the 5.56mm ball rounds? Please provide details.
- A. Current problems with SCAMP caused a revised schedule proposal to be initiated by Lake City Army Ammunition Plant (LCAAP) in Aug 83. The proposed revised schedule reduced Sep-Nov 83 original schedule, with increases beginning in Dec 83 thru the end of the contract period, Jun 84. The revised scheduled deliveries were met with the exception of a shortfall of 9,897,400 rounds in Dec 83. Cost impact can be reflected based on December's production. Conventional production costs were 149.53/1,000 rounds. SCAMP production costs were 120.64/1,000 rounds. These costs are manufacturing costs only, excluding GFM. (SCAMP, 120,080,000 qty; Conventional, 8,699,920 qty). Based on the current problems, SCAMP does not have the capacity to manufacture all requirements. Conventional production will supplement SCAMP production until problems are resolved.
- Q. Has the Army identified and resolved the problems which have been plaguing the SCAMP lines? Please explain.
- A. No. Remington Arms was directed to conduct a study beginning 9 March 1984. Results of this study will be presented at an IPR scheduled for 11 April 1984. AMCCOM will forward the results of this study when complete.
- Q. The two SCAMP lines on which 5.56mm SAW ammunition is to be produced are currently scheduled to be ready July 1985.
- a. Has any SAW ammunition been produced on the SCAMP lines? If yes, how much and have any problems arisen?
 - b. Will the current problems with the SCAMP lines affect the scheduled completion date of July 1985?
 - c. Will the lines be ready in time for production of the FY85 DOD-wide SAW Program?

- A. a. No SAW ammunition has been produced on the SCAMP line.
b. The problems with the 5.56mm ball SCAMP will not affect completion date of the SAW SCAMP lines.
c. Yes. There will be some peripheral projects that are not complete, but they are scheduled to be ready for second half of FY85 production. The peripheral projects will have no effect on meeting the FY85 production of the SAW.
- Q. To date, have the SCAMP lines proven to be a viable high production source for 5.56mm ammunition? Explain response.
- A. Yes, SCAMP has produced over 1/2 billion rounds since full scale production began in Jan 79.
- Q. Why is the LCAAP management contract up for bid?
- A. Even with an ever increasing workload, the cost of the products continued to escalate rather than decrease. In addition, scrap rates are excessive. Management appears unable or unwilling to correct the situation.
- Q. What impact will there be if a new contractor wins?
- A. The new contractor will have a learning curve and an efficiency disability for at least six months. After that time, he should reach peak efficiency with reduced costs.
- Q. Why is the Army contracting out with the private sector to produce 5.56mm ball cartridges, given the available production facilities at Lake City AAP?
- A. The Army is contracting out with the private sector due to the increased FY83 and FY84 requirements which would have resulted in Lake City AAP adding another shift. The Army does not want the operating contractor to increase the employment level at Lake City AAP and has taken action to compete the quantity on the open market.
- Q. Are private sector unit costs lower than those at Lake City AAP?
- A. The current contract (FY83) at Olin is .1165 per round. The current FY83 Lake City cost is .1550 per round. These costs do include some GFM.
- Q. Can the private sector produce the total quantities of 5.56mm ball cartridges?
- A. The private sector cannot produce the total Ball M193 requirements for FY84 or FY85.

Cartridge 7.62mm Match, M118

- Q. Have the production/technical problems with this cartridge been resolved yet?
- A. No.
- Q. If the problems have not been resolved, when are they expected to be?
- A. The problems with the production of the M118 cartridge are misfires caused by a quality problem in the manufacture of the primer, and excessive chamber pressure which is probably caused by the formulation of the IMR 4895 propellant.
The quality assurance inspectors at LCAAP have been instructed to assure that cleanliness and uniformity are maintained in the primer manufacture. A ECP is being processed for the IMR 4895 propellant to increase its density. There are many factors affecting the acceptance parameters, such as variation in propellant weight, and crimp and bullet uniformity and test barrel accuracy. However, if the improved primer manufacture and propellant change result in adequate improvement, the problem will be solved in 6 months. The investigation of the problem is continuing at ARDC.
- Q. What effect have these problems had on being able to produce the FY83 and FY84 programs? What impact will they have on the FY85 program, if approved?
- A. Balance of FY83 orders can be produced in five months after problem resolution. FY84 quantity can be produced subsequently in four months. No impact on FY85 program.

Budget Line Nos. 36, 37 & 39
Cartridges 40-mm., Sgt. York
E19601, E19603, E19605

Q. The purpose of the Technology Transfer, Fabrication and Testing program is to successfully develop a U.S. produced ammunition cartridge that is equal to or better than the foreign cartridge. In order to demonstrate this, a series of qualification tests are required. In addition, the program seeks to validate a technical data package which is needed for competitive procurement.

o Has the scheduled completion date for the Technology Transfer, Fabrication and Testing program been extended beyond May 1984, and if so, what is the latest date and reason for the change?

A. The purpose of the Technology Transfer, Fabrication & Testing program is to successfully develop a United States produced ammunition cartridge that is equal to or better than the foreign cartridge. In order to demonstrate this a series of qualification tests are required. In addition, the program seeks to validate a technical data package which is needed for competitive procurement.

o Completion date for validation testing is extended to July 1984 in order to requalify the PD fuze delay module improvements and the CONUS Safety & Arming (S&A) for the proximity fuze.

Q. When are the qualification tests scheduled to be completed for the target practice, point detonating fuze and proximity fuze cartridges?

A. Qualification tests of the target practice are scheduled for completion by April 1984. The HEI cartridge validation is completed in April 1984; the revalidation of the improved fuze delay module will be completed in July 1984. The proximity fuze cartridge validation will be completed May 1984; the CONUS S&A validation by July 1984.

Q. When is the final technical data package for the ammunition due from Ford and are there any indications that this will not be met?

A. Final Technical Data Package (TDP) from Ford is still planned for October 1984. There are no indications this will not be met. The cartridge design will have been qualified in the ammunition validation tests by that time. System level Initial Production Tests (IPT) in September 1984 will provide confirmatory design validation. It is not anticipated that system IPT will impact on cartridge TDP; however, if an ammunition related problem occurs, the government will not assume configuration management until the contractor has taken corrective action.

Q. Does the Army plan to go to a competitive or sole source procurement for the fiscal year 1985 buy?

A. The Army plans to procure fiscal year 1985 ammunition buy on the component level as opposed to the past practice of procuring the ammunition as an end item sole source from Ford Aerospace & Communications Corp. Procurement of the components will be competitive to the maximum extent possible, but there are components which will be sole source due to long lead times and costly government investment in production facilities.

Q. What would be the impact on the fiscal year 1985 procurement plans if the technical data package is not delivered on time?

A. The longest lead time items will be procured on performance specifications from current suppliers before the technical data package is due from Ford. The Request for Proposal (RFP) release for the competitive procurement of the remaining cartridge components will be made using the current technical data package which will be suitable for solicitation with the provision that final contract awards would be contingent upon receipt of the TDP end of October 1984. If the October 31, 1984, delivery date of the TDP slips and Office of the Project Manager (OPM) Sgt York is unable to provide AMCCOM with a competitive TDP, then items which were planned to be procured on a competitive basis will have to be procured from current producers due to time required for first article testing.

Q. Is the fiscal year 1985 budget request based on competitive or sole source procurement?

A. The fiscal year 1985 budget request is based on a competitive procurement to the maximum extent possible. However, there are some

components which will be sole source due to long lead times and Army investment in costly production facilities.

Q. The Technology Transfer, Fabrication and Testing program has been extended due to developmental problems such as the lack of a suitable high velocity propellant, melting of the proximity fuze and formation of an unstable compound in the point detonating fuze.

o What actions has Ford taken to ensure that the developmental problems have been corrected?

A. Actions taken to correct the development problems are as follows:

o High Velocity Propellant - An extensive program was conducted with various propellant configurations from EXPRO, Hercules and Olin to obtain a satisfactory propellant for the 1100 m/s proximity cartridge. A double deterred, single base, single performance propellant manufactured by EXPRO has been developed which has met the 1100 m/s performance parameters.

o Proximity Fuze Radome - The problem was not the melting of the entire proximity fuze but ablation of the plastic fuze radome from the heat generated by the increased projectile velocity. This led to increased drag and time of flight. Ford and Bofors jointly evaluated both statistically and dynamically many different thermoset and thermoplastic materials in order to find an optimum combination of heat and stress, electrical conductivity, and producibility. A thermoplastic material called PEEK (Polyetheretherketone) has been selected and has proven satisfactory in testing.

o Point Detonating Fuze - The problem referred to, formation of an unstable compound, requires some explanation in order to put this in its proper perspective. The delay module of the M761 contains two copper alloy components and a lead azide detonator. It is theoretically possible that moisture can create a chemical reaction resulting in formation of unstable copper azide. This situation is not peculiar to nor has it ever occurred in the M761D. It is a potential problem in any explosive item with the as yet undefined combination of moisture, lead azide and copper. The problem has been of most concern to the Navy, whose items are exposed to high moisture and salt laden environment. Because the combination required to produce a reaction has never been adequately quantified, there are no Army regulations or Military Standards prohibiting the use of copper alloys in items with lead azide. The M761 would actually be considered a low risk since the delay module is hermetically sealed and tested for waterproofness and has out of line detonator safety. However, since the M761D was not yet a fielded item, it was judged advisable to eliminate all bases for concern about safety by eliminating the copper alloys. Honeywell, in December 1983, began a 7 month parallel evaluation combining static and ballistic testing of selected performance parameters. This effort does not entail any changes to the primary portion of the fuze forward of the delay module.

Q. What is the status of testing to confirm the correction of the problems?

A. Testing status of the corrective actions are as follows:

o Propellant - Two lots of 1100 m/s propellant (20,000 & 16,000 lbs) have been accepted. The propellant has been tested in the proximity fuze cartridge lot acceptance tests and is being used in the proximity fuze cartridge validation tests which are ongoing through May 1984.

o The 1100 m/s propellant has also been tested in the high velocity Target Practice (TP) cartridge prequalification and Lot Acceptance Tests (LAT), and is being used in the cartridge qualification ongoing through May 1984. This cartridge is a test item used as a substitute for the proximity cartridge in gun and system level tests and will not be a fielded item. The fielded TP cartridge, M813, will be the low velocity (1030 m/s) for which a suitable propellant has been available for some time.

o Proximity Fuze Radome - The new radome has been evaluated in a series of development tests, material selection tests, fuze/cartridge prequalification and LAT, and is now being used in ongoing cartridge validation tests. To date approximately 1935 rounds have been ballistically tested, with an overall cartridge reliability of 96 percent. No problem has been attributed to the radome. The remaining cartridge validation tests will be completed by May 1984.

o Point Detonating Fuze - Honeywell has procured replacement hardware for all components except the firing pin. Lab tests are in process to evaluate steel firing pin configurations. Preliminary static detonator safety tests using steel delay module outer housings will be initiated this month. Requalification of the modified delay module will be completed by the end of June 1984.

Q. The contractor is investigating the reason why the United States produced proximity fuze safety and arming device failed the lot acceptance test. Until a solution is found, a foreign made safety and arming device will be used with the proximity fuze.

o What is the status of the contractor's investigation to determine the reason why the proximity fuze safety and arming device failed the lot acceptance test?

A. During recent tests, the proximity fuze exhibited marginal performance (85-87 percent vs 90 percent required) in the proximity function mode. Failure analyses indicated that the most probable cause was late arming of the United States made safety and arming device. Diagnostic investigation of the S&A is now ongoing with Ford, Maganavox, and Harry Diamond Laboratory (HDL), focusing on such areas as assembly processes and dimensional tolerances, lubricant, and influence of CONUS material in critical components. Since the United States version is built from the foreign (Tavaro) data package, samples of United States devices have been critiqued by Tavaro and vice versa. Indications are that while the United States device generally complies with the data package, the foreign devices are held to much tighter tolerances and surface finishes. In Technology Transfer, this is referred to as "know how", that is, Tavaro knows from experience that certain surface finishes and alignments may have to be held to precision tolerances; however, this is not written into the TDP.

Q. What are the technical performance and safety characteristic differences between the United States produced safety and arming device and the foreign produced device that is being used as an interim substitute?

A. The United States and foreign produced S&A are identical designs built to the same data package.

o The proximity fuze program has always been structured such that while a CONUS equivalent S&A design would be qualified during cartridge validation, the European S&A would be used to meet the first two low rate production options built off the partial Initial Production Facility (IPF), with transition to full CONUS at Option 3 when the full IPF is on line. This ensures that fuze components are available to provide a smooth transition from hand line thru full IPF and the CONUS S&A devices were procured early on in the program for just that purpose.

Q. Have alternatives other than the use of the foreign produced safety and arming device been considered?

A. The United States and foreign produced S&A are identical designs built to the same data package.

Q. Will safety waivers be requested to enable the use of the foreign safety and arming device?

A. Safety waivers will not be required for the foreign S&A. Both it and the United States S&A are the same design with dual independent safety and approved explosives, and it will have been qualified in fuzes tested in the ongoing cartridge validation tests.

Q. How many proximity fuzed cartridges are expected to have the foreign safety and arming device and when will a United States made safety and arming device be introduced?

A. Production Options 1 and 2, totaling 26,400 rounds will have the foreign S&A device. The United States made S&A device will be introduced into production Option 3 in August 1985, which is in accordance with program structure. Assuming successful conclusion of the CONUS S&A get well program by end of June 1984, this schedule can be met.

Q. Army plans call for the use of U.S. produced target practice cartridges during initial production test of the fire unit.

o Will there be an adequate quantity of target practice ammunition to support the initial production test? This test has been delayed from April 1984 to September 1984.

A. There will be an adequate supply of target practice cartridges available to support the initial production tests?

Q. If the available United States produced cartridges are not adequate, what ammunition will be used?

A. Supplies of United States produced cartridges will be more than adequate to support planned tests.

Q. What is the current delivery schedule by type for the three production options?

A. See Attachment 1 delivery schedule.

Q. The Army is considering a delay in the exercise of Option III due May 31, 1984, for the Sgt York fire unit because the contractor is late in delivering these units.

o In light of this, does the Army intend to exercise Option III for the ammunition by May 30, 1984?

A. The Army plans to award the Option III ammunition at the same time as the other Option III hardware is awarded.

Q. What impact does the delay in the delivery of the fire units and possible delay in exercising the third option for the fire units have on the need for the ammunition quantities included in the fiscal year 1985 request?

A. Delay of fire unit delivery is, for the most part, in the early part of the program. The Army and the contractor expect that the contractor will have recovered all shortfalls and be back on the contract schedule by the end of Option III. Therefore, no effect is anticipated on the required ammunition quantities in the fiscal year 1985 request.

Budget Line No. 40
Cartridge, 40-mm. HEDP High Vel. Launched
E11800

Q. The M430 cartridge to be procured by the Army in fiscal year 1985 was type classified in 1971. Provide justification for this cartridge's need in fiscal year 1985 for the first time since it was approved for production about 14 years earlier.

A. From the end of the Vietnam conflict to FY 84, the Army Acquisition Objective (AAO) for this 40mm family of ammunition was 77K/yr. Due to the large existent stockpile of M383 and M384 cartridges capable of meeting this requirement, a procurement action was not deemed appropriate. However, with the recent interest raised by the 9th ID and the Infantry School at Ft. Benning to procure the 40mm MK19 MOD 3 Grenade Machine Gun (GMC), the AAO was increased to a number substantially above the current stockpile level; triggering the need for the latest FY 84/FY 85 Army procurement actions.

Q. Is the design of this cartridge developed over 14 years ago capable of countering the threat of the 1980's?

A. Yes, the predecessor of the 40mm M430 HEDP was the M383/M384 HE cartridges, having solely anti-personnel capability. The current round is designed to penetrate two inches of rolled homogeneous armor plate at 0° obliquity and satisfy the dual purpose (anti-personnel-light armor) requirement. It is currently the only ammunition available to the infantryman capable of defeating the present BMP threat. In an attempt to meet the anticipated added future threat of the BMP follow-on vehicle, plans have been implemented for a FY85 Product Improvement Program (PIP) to develop an M430 HEDP cartridge capable of penetrating a minimum of three inches of armor plate.

Q. What system is the MK19 MOD 3 replacing in the Army and specifically when and how will it be used?

A. The MK19 MOD 3 Grenade Launcher is not replacing an existing system in the Army. Rather, it is being adapted to provide the user with the added capability to defeat enemy ground personnel plus lightly armored vehicles in an infantry mode.

Q. Actual deliveries in February 1984 were about 17,000 cartridges whereas the Services' production schedule indicated the planned deliveries were 273,000. Since production is significantly behind schedule, will the production of the previous buys and the fiscal year 1985 buy be completed before expiration of the end of the FY 1985 funded delivery period which could end September 30, 1986?

A. The production capability at Milan AAP is estimated at 500,000 end items per month, which exceeds the planned production schedule of the previous buys and assures that the FY85 buy will be delivered by 30 Sep 86. The LAP operation was halted due to insufficient fuze deliveries. This non-delivery of fuzes can be attributed to line stoppage resulting from depletion of funds. This problem has since been resolved, additional funding obtained and operations at the LAP facility is expected to resume in April 1984.

Q. What actions are being taken to expedite the production of these cartridges to meet planned production schedules?

A. Production deliveries of end item components in the FY82 and FY83 buys are being modified in order that the complete cartridge delivery schedules could be updated. It is planned to deliver all components to the LAP facility in a timely manner to assure that FY85 production buys could be delivered by 30 Sep 86. To accommodate this delivery schedule various options are opened to the government, among which are to multi-shift the current producers at some premium cost or to provide additional sources based on pricing comparisons engendered from review of technical proposals received in response to industrial based inquiries from a notice posted in the 24 Feb 84 issue of the Commerce Business Daily.

Q. To produce the quantity of M430 cartridges being requested will require operation of existing production facilities on a multiple shift basis. What is the incremental cost of this cartridge attributable to operating facilities on a multi-shift basis?

A. Incremental cost differentials attributed to operating facilities on a multi-shift basis is predicated on production obtained on a 1/8/5 shift. 180% of that total is obtained on a 2/8/5 and 250% on a 3/8/5 shift basis respectively. Determining the cost of this item will necessitate review of costs provided from the competitive industrial response and a comparison against the estimated cost obtained on the required multi-shift basis. This comparison should be completed by May/June 84 time period. The resultant cost will then be compared to the Independent Government Cost Estimate (IGCE) for the FY84 program currently in the FYDP on a 1/8/5 basis.

Q. Have economic analyses been performed to determine if additional facilities are required to reduce cost and alleviate the apparent strain on the existing facilities?

A. As the total quantity planned for FY84 exceeds the current operating capability on a 1/8/5, costs have been completed based on 1/8/6 shift needed to meet the requirement. In addition, the FY85 procurement action was based on current producers working on a 2/8/6 basis. This was necessitated by the cancellation of the programmed late start FY84 second facility project by the Army. The FY86 thru FY90 recommended program for the production of 4.2 million rounds was predicated on the present source operating on a 3/8/5 basis or utilizing two sources on a 1/8/6 basis with the caveat that Army facility funding would be made available for a 2nd facility.

Q. Provide data on the existing capacity for the most critical components and data on proposed facility projects to increase capacity.

A. The Initial Production Facility (IPF) funded in FY82 provided for the following capabilities on a 1/8/5 basis:

- a. 125 K/month for the M549 PIED fuze
- b. 140 K/month for the M430 body assembly
- c. 160 K/month for the M169 cartridge case

A late start FY84 facility project was submitted to higher authority to duplicate the existing capacity by establishment of a second facility at a maximum cost of 12.5 million dollars. A late start FY85 facility request was being programmed to establish both facilities at a 200,000 per month capability; providing for 4.8 million cartridges per year on a 1/8/5 basis. These projects, however, were terminated and substituted by the PIN posted in the Commerce Business Daily on 24 Feb 84.

Q. Specifically what is the justification for providing additional facilities if existing facilities can satisfy requirements on a multi-shift basis?

A. Existing facilities can satisfy FYDP quantity requirements of 3750K on a multi-shift 3/8/5 basis thru FY84. The FY85 procurement quantity of 4.2 million, however, demonstrates the obvious need to broaden the industrial base to meet the increased demand as well as to foster competition to reduce costs and to protect against the expected surge requirements to arise from a dramatic increase in weapon procurement actions taken by the User community considering expanded modes for this weapon system.

Budget Line No. 42
Cartridge, 40mm Practice Low Velocity
E13800

Q. Will the Army eliminate the FY84 buy entirely?

A. The Army will eliminate the FY84 buy of 40mm practice ammunition in its entirety. The out years will be restructured so that the annual training consumptions are procured on a yearly basis. In so doing, the Army can continue to support one producer at or above the 1-8-5 production level.

Q. Without a FY84 Army buy will there be a break in production for the Army before a FY85 buy can be initiated?

A. Yes, without an FY84 buy there will be a 15 month break in production. The FY83 Army buy will be completed in July 84 and the production of the FY85 quantity will not begin until Oct 85. The other service requirements are not adequate to sustain an economical production schedule.

Q. Wouldn't a break in production possibly increase the cost of production, thus increasing the cost of the cartridge to the Government?

A. No, this is a commercially produced item, and a new contract is awarded each fiscal year through competitive bid solicitation. Historically, an award is placed with a different contractor each year (three commercial sources are available). A break in production is normally expected and should not affect the next fiscal year contract price.

Q. Does the Army plan to reduce the FY85 program? If yes, by how much?

A. As a follow on action to the FY84 procurement elimination, the Army plans to reduce the FY85 program so as to reconcile inventory assets with annual training consumptions. An FY85 reduction of approximately 700,000 rounds is planned; however, the final quantity is dependent on contractor bid price for the smaller quantity of rounds.

Q. When will the two present contractors, who both suspended production in November 1983 due to production and testing problems, resume full production?

A. Maryland Assemblies, Inc. resumed full production on February 27, 1984. Action Manufacturing Company is scheduled to resume full production on or about April 30, 1984.

Q. If the Army intends to buy the 4 million cartridges for FY84 and 3.2 million for FY85 as shown in the FY85 budget submission;
o How is production of this large quantity to be accomplished in light of current and past production problems?

A. Under the restructured profile, the Army has eliminated the FY84 buy and has reduced the FY85 and out year buys to approximately 2.7 million rounds annually. Should additional production capacity be required, contracts would be

awarded to multiple producers according to their proven production capability; or to their projected production capacity (for new producers).

- o Can less expensive packing be used for these training cartridges?

A. The answer is always yes, but in so doing something must be given up to achieve cost savings. How the ammunition is to be issued, how it is to be used, and storage conditions throughout the world dictate for the most part what must be done to protect and preserve ammunition items. Presently, the 40mm practice ammunition is packaged Level A as required for OCONUS shipment. Recommendations have been made to place all training ammunition in Level C or Level B fiber boxes but the Army has rejected such proposals since it does not meet required standards.

Budget Line Nos. 30, 46, 47 & 52
Cartridges 181mm (Improved)

Q. The XM252 is an adaptation of the United Kingdom's LI6A2 system and uses components of the U.S. mortar systems.

- o Please explain the difference between adaptation of a system and Technology transfer, fabrication and testing of a system.

o Will this adaptation provide for some components to be produced in the U.S. and what percentage of this system is U.S. producible?

- o Will technology transfer be required for future production of the 181mm mortar and cartridges in the U.S.?

A. o In the case of a TTF&T program, a US contractor would buy the rights to a foreign government's technical data package, revise the drawings to a US standard, produce a limited quantity for testing (proveout) and then sell hardware to the US government.

The US XM252 System utilizes the existing UK production base for select components of the LI6A2 system. These include the barrel, bipod, blast attenuation device (designed under co-development contract) and High Explosive ammunition. US materiel includes the baseplate, sight unit, M734 Fuze, M935 Fuze and the felted fiber container. The remaining ammunition, smoke, illumination and full-range practice cartridges are all US manufactured.

- o As configured above, approximately 80% of the system is US producible.

o As stated in the license agreement with the UK, the complete technical data package, along with the description of manufacture and data rights, will be provided to the US six months after contract award. The US will have the right to manufacture after procurement of 4,000 mortars and 2.1 million rounds of ammunition. Therefore, no technology transfer will be required for future US production.

Q. Development testing II for the training, smoke and illumination cartridges will not be completed until mid-1984 or early 1985 yet the Army is requesting about \$13.4 million to procure these cartridges.

- o What evidence is available that these cartridges will not encounter testing deficiencies requiring further development efforts and result in a delayed type classification?

o Is it unusual for the Army to request procurement of ammunition prior to verifying its readiness for use?

A. o In a normal development program, engineering testing precedes Development Testing II. From these engineering tests confidence is gained that these cartridges can successfully complete Development Testing II.

- o It is normal Army policy to plan/budget procurement of hardware prior to type classification.

Q. o Army procurement policy prohibits requesting funds for ammunition not scheduled for type classification prior to Dec 31, 1984, for fiscal year 1985 procurements. Please explain the obvious exception to this policy being applied to the XM879 practice cartridge?

A. o There is no exception to the first quarter type classification policy. At the time the fiscal year 1985 budget was developed, planned type classification for this item was first quarter FY85. Subsequent to the submission of the budget it was believed that type classification would slip to second quarter FY85. However, as a result of direct Congressional interest expressed to MG Pihl during his testimony on March 21, 1984, the Army is accelerating type classification of the XM879 back into first quarter FY85.

Q. o The Army's uncertainty over mortar requirements coupled with incomplete testing and late type classification would appear to preclude procurement of 181mm mortars or cartridges in fiscal year 1985 or at a minimum request low rate initial production quantities.

o Has the Army made a decision on the mortar requirements and made a final determination that if deployed our existing troop strength would allow them to be effectively used?

o Why is the Army requesting funds to procure large quantities of the high explosive cartridges and relatively small quantities of the other tactical cartridge? Please provide the ratio of these cartridges when the authorized acquisition objective is achieved.

A. o The Army has decided to retain a heavy mortar for heavy units and a light mortar for special units and operations in areas where portability is critical. The requirement for the medium 81mm mortar is still being evaluated, and is dependent on the mission and deployment scenarios envisioned for Airborne, Air Assault, and the new Light Infantry Divisions.

o The relative quantities of high explosive, smoke, and illuminating cartridges are determined through evaluation of various threat scenarios. According to the current fiscal year 1985 - 1989 Presidents Budget, the ratios at AAO are as follows:

1-81mm:	HE to Smoke	8.46:1
	HE to Illum	4.40:1
	HE to Smoke and Illum	2.89:1
4.2":	HE to Smoke	10.16:1
	HE to Illum	22.39:1
	HE to Smoke and Illum	6.99:1

Q. o A considerably larger number of 60mm mortars were procured than the Army plans to field.

o What does the Army plan to do with those mortars not to be fielded?

o What chance is there that this will occur with the 181mm mortar system?

o What sense of urgency is there to procure the new 181mm when an existing system is available and please provide the specific advantages of the new system over the existing system?

A. o The Army will place most of these mortars in Special Forces operational Stocks. However about 200 mortars will be retained for possible use by the Rapid Deployment Force and in situations where portability is critical.

o Congress has directed the Army to prepare a long-range plan for mortar requirements and has prohibited acquisition of any new systems until the report is submitted. This plan will preclude repetition of the overprocurement problems.

o The XM-252 1-81mm Mortar System provides a faster sustained rate of fire, longer range, and increased lethality over the existing M29A1. A complete comparison of the two systems is provided at Enclosure 1. Although the mortar structure for the new Light Infantry Divisions has not yet been determined, a decision favoring retention of 81mm mortars in these units will require that the improved version be fielded as soon as it becomes available.

	<u>I-81MM</u> <u>XM252</u>	<u>81MM</u> <u>M29A1</u>	
WEIGHT, LBM (NO ANCILLARY EQUIPMENT)	91 M3 BASEPLATE (INCL BAD)	93-M3 BASEPLATE	
SIGHT TYPE	M64	M34A2	M53
WEIGHT, LBM	2.5	4.0	5.3
LUMINOUS	YES	NO	NO
RATE OF FIRE, MAX	30	30	
RATE OF FIRE, SUST	15	12	
BARREL BORE	SMOOTH	SMOOTH	
BLAST ATTENUATION DEVICE (MEETS SURGEON GENERAL'S RQMT)	YES	NO	
CREW SIZE	5	5	
GROUND MOUNT			
TRANVERSE RESTRICTIONS	NONE	NONE	
ELEVATION RESTRICTIONS-MAX, MILS	1511	1511	
-MIN, MILS	800	800	

MORTAR AMMUNITIONHIGH EXPLOSIVE

CALIBER	I-81MM	81MM**
WEAPON	XM252	M29A1
MODEL DESIGNATOR	XM889 XM821	M374A3
FUZE	PD, 935; MOF, M734	PD, M567
RANGE, (M), MAX	5700	4800
MIN	84	100
COMPARATIVE LETHALITY* (PMI = 1.0)	1.03	.78
WATER RESISTANT	YES	YES

* AMSAA STUDY

** MAX RANGE OF STOCKPILE AMMUNITION - 4.2³: M329 AND M329B1 - 5420M; M329A1 - 5650M

- 81MM: M374A3 - 4800M; M374A2 AND M374 - 4500M

MORTAR AMMUNITIONSMOKE

CALIBER	181MM	81MM
WEAPON	XM252	M29A1
MODEL DESIGNATOR	XM819	M375A3
TYPE/PAYLOAD	RP/2.65 LBS	WP/1.75 LBS*
FUZE	TIME, XM768	PD, M567
RANGE IMPACT, M MINIMUM, M	5100 300	4800 100M
WATER RESISTANT (OUT OF PACK)	YES	100M

* PLANNED PIP TO EXTEND RANGE TO 5300M

MORTAR AMMUNITIONILLUMINATION

CALIBER	181MM	81MM
WEAPON	XM252	M29A1
MODEL DESIGNATOR	XM853	M301A3
FUZE	TIME, XM768	TIME, M84A1
RANGE (M) MAX	5500 (BURST) 5800 (ILLUM)	3150 (BURST) 3400 (ILLUM)
RANGE (M), MIN	300	250
ILLUM CANDLEPOWER* AREA, SQ M TIME, SEC	650,000 283,000 60	380,000 196,000 60
WATER RESISTANT	YES	YES

* COMPARATIVE TEST RESULTS

MORTAR AMMUNITIONTRAINING

CALIBER	I81MM	I81MM	81MM
WEAPON	XM252	XM252	M29A1
MODEL DESIGNATOR	XM879, TP	XM880, SR*	M1 SABOT (INERT)
FUZE	TBD	TBD	22MM SUB-CALIBER CARTRIDGE INSERTS
RANGE (M)			
MAX	5700	NOMINAL	435
MIN	84	1/1C	195

* SR - SHORT RANGE

Budget Line Nos. 48, 49, 50 and 51
Cartridge, Sub-Caliber, 22 practice, All Types
(E10901, E10902, E10903, E10904)

Q. Why is there up to a three-fold increase in training requirement projections for these cartridges? If the projections are incorrect, what should they be?

A. The training requirements projections are correct. The increase is due to the fact that the 22mm subcaliber round provides training at much lower cost than full-size rounds. We are consequently getting more training for less money under the new requirements.

Q. What is the status and result of the investigation and ballistics tests conducted by the producer? Does the Army concur? If so, will the first two rejected lots be accepted?

A. The ballistics tests conducted at the proving ground have been completed; the results indicate a difference in velocity due to a difference in cleaning methods used by the proving ground and the contractor. A reevaluation of the ballistic lot acceptance data using a correction factor for this difference has resulted in one of the two lots being found acceptable.

Q. Has the Army made a decision on accepting the other four rejected lots? If not, what would be the impact?

A. The Army has not made a final decision on accepting the final four rejected lots which consist of approximately 48,000 items out of a total production of about 400,000. The contractor, Ensign Bickford, has not submitted a request for a waiver for the rejected lots; therefore, the decision is still pending on that action. If the contractor does not submit a request for a waiver to the Configuration Control Board (CCB) for the rejected lots, he is still obligated to fulfill the contract for the total quantity.

Q. With such a high frequency of rejected lots occurring over a short period, what impact will this have on future production (e.g., delays) and the proposed fiscal year 1985 procurement program?

A. The frequency of rejected lots is not considered high and will not have an impact on future production as the rejected lots are not a function of tech data packaging deficiency.

Budget Line No. 55
Cartridge, 4.2-inch, Smoke, WP
(E25400)

Q. The maximum range of the 4.2-inch smoke cartridge model M328A1 is 5,650 meters while the range of the high explosive (HE) cartridge model M329A2 is 6,600 meters. Should the ranges of the smoke and HE cartridges be better matched?

A. Yes, the ranges of the smoke and HE cartridges should be better matched. This will require a new smoke cartridge RDT&E program.

Q. Does the Army have a firm plan for modifying the smoke cartridge to achieve greater range?

A. No, The US Army Infantry School and PM Smoke are discussing a plan but there is no firm required operational capability at this time.

Q. If yes, when will the modification be completed and the technical data package prepared?

A. The answer to question #2 negates this question.

Q. Should procurements be deferred until the modification is complete?

A. The answer to question #2 negates this question.

Q. The M48A3 fuze used on the smoke cartridge has not been produced for many years. Can the Army get the technical data package prepared and line up producers in time for production of the fiscal year 1985 program?

A. Yes. An M48A3 TDP could be updated for the fiscal year 1985 buy, but would not be certified for production under current safety standards. The two current active producers (Action Mfg Co & REXON Corp) could produce an fiscal year 1985 buy if an exception to the safety standards were authorized.

Q. Program quantities are relatively low and facilities are expensive. This could drive up the fuze cost considerably. What is the average unit M48A3 fuze cost in the fiscal year 1985 through 1989 program when all costs for engineering, provision of facilities, testing and production are considered?

A. Average unit cost would be approximately \$20 per fuze over the fiscal year 1985-89 program, excluding provision of facilities. No government facilities are required.

Q. Is it feasible and cost effective to get the M48A3 fuze by converting existing M557 fuzes for smoke cartridge production and replacing the M557 fuzes with the preferred model M739?

A. Cost would be \$2.00 to \$2.50 per unit depending on which depot was selected for the rebuild. Production is feasible only if the safety standards are waived as noted above.

Q. The fiscal year 1985 quantities are scarcely enough to maintain production at the minimum sustaining rate for about six months. Future quantities are about the same size. This will result in production breaks. Should the entire planned fiscal year 1985 through 1990 programs be combined to achieve a more economic production rate and eliminate production breaks?

A. Yes.

Budget Line No. 63, 64, 65 & 66
Cartridge 120-mm.
E73100, E73200, E73300, E73400

Q. The 120mm. ammunition was type classified limited procurement although testing and development efforts were apparently far from complete.

o What was the primary reason for type classifying the ammunition limited procurement?

o Provide a brief synopsis of the technical data on each cartridge which was the basis for the type classification.

o Compare the quantity of each cartridge which can be procured under the limited type classification criteria with the quantities funded in fiscal year 1984 and requested in fiscal year 1985.

o What are the most current standard type classification dates for the 120mm. cartridges?

A. o Type Classification for Limited Procurement (TC-LP) of the 120mm Armor Piercing (XM829), Armor Piercing Target Practice (XM865) and High Explosive Target Practice (XM831) cartridges was pursued in order to support the urgent operational requirement of providing ammunition for the first production roll-off (August 1985) and subsequent deployment of the M1E1 tank; however, TC-LP would not have been approved if there was not a high degree of confidence in resolution of the shortcomings that were identified during testing.

o At the time of Limited Procurement Type Classification, there was sufficient data from the development program and testing to demonstrate that the cartridge designs were safe to fire and that performance levels as defined in German tests had been replicated. The test data available involved environmental exposure, safety and structural security, temperature extremes (-46°C to +63°C), and terminal ballistic data.

o The quantities of each cartridge which can be procured under the limited Type Classification criteria and the quantities funded in fiscal year 1984 and requested in fiscal year 1985 are:

ITEM	TC-LP Quantity	Quantity Funded FY1984	Quantity Requested FY1985
Armor Piercing (XM829)	8500	9000	10000
High Explosive (XM830)	0	4000	13000
Armor Piercing Target Practice (XM865)	20000	20000	54000
High Explosive Target Practice (XM831)	10000	9000	21000

o The most current Standard Type Classification dates for the 120mm cartridges are:

ITEM	TC-STANDARD
XM829	SEP 84
XM830	SEP 84
XM831	MAY 84
XM865	MAY 84

Budget Line No. 63, 64, 65 & 66
Cartridge 120-mm.
E73100, E73200, E73300, E73400

Q. The most critical tactical cartridge (XM829) is experiencing dispersion and chambering deficiencies that apparently have raised serious concerns in the development and testing community.

o Does the Army intend to enter production of the XM829 although the dispersion criteria is not met? If so, please explain.

o What is the probability that chambering is being caused by the combustible cartridge case common to all ammunition and could this chambering result in in-bore explosions?

o Have combustible cartridge cases been used in the past and if so, on what systems and what difficulties were encountered?

o Is the German 120mm system encountering deficiencies relative to dispersion and chambering as is the U.S. system?

o What is the most likely cause of both the dispersion and chambering deficiencies and what actions are planned to overcome the deficiencies?

A. o A program to improve the dispersion performance of the XM829 is currently underway. The initial phases have been completed and indicate the parameters identified for modification were correct. Large sample testing by the contractor is scheduled to occur in late April 1984 followed by government testing in May 1984. Type Classification Standard action is planned to be initiated in June 1984. This time frame will enable the tested modifications to be incorporated in production rounds.

o The combustible cartridge case did not cause chambering problems nor could it result in in bore explosions.

o A combustible cartridge case was used for the 152mm ammunition system. Problems such as propellant spillage from cracked cases burning residue and moisture absorption were associated with this system. The 120mm system has propellant containment bags, an integral protective cartridge case finish and has undergone over 10,000 firings without evidence of residue. While the combustible case technology is similar, the operating characteristics of the 152mm versus the 120mm system are different and problems that were inherent in the 152mm system are not found in the 120mm system.

o The Germans are not experiencing chambering problems. The German 120mm ammunition has approximately the same dispersion characteristics as US 120mm ammunition; however, the XM829 is unique to the US and the US range requirement at which dispersion must be met is greater than the German requirement.

o The most likely cause of dispersion difficulties is the "less-than-smooth" discard of the sabot petals as the round leaves the muzzle. Dimensional and positional characteristics are being modified in the dispersion improvement effort previously discussed. Chambering problems were caused by an oversize condition in the projectile diameter. Revised manufacturing procedures will preclude this happening in the future.

Budget Line No. 63, 64, 65 & 66
Cartridge 120-mm.
E73100, E73200, E73300, E73400

Q. The development of the 120mm ammunition apparently is being accelerated by the roll-off of the M1E1 tank which is scheduled for August 1985.

o What consideration has been given to procuring foreign produced ammunition for tank roll-off to reduce the urgency of the 120mm development efforts and risk in the program?

o What quantity of cartridges are required for tank roll-off and how was this quantity determined?

o What period of time could 120mm ammunition procurement be delayed and still meet the initial operation capability requirement in FY 1986?

A. o Consideration was given to procuring foreign produced ammunition; however the decision was made to produce all rounds but the high explosive cartridge (XM830) in the United States. This decision was based on the limited quantities being procured, the utilization of facilities investment to produce the ammunition, systems contractor experience in producing to date over 20,000 rounds, assessment of our ability to incorporate fixes to short-comings detected during testing, and on the fact that there are performance and safety differences between our rounds and their German counterparts. The German armor piercing round has a tungsten penetrator while the US round (XM829) uses depleted uranium and has superior armor penetration capability. The target practice round (XM831), as a result of fin machining processes, will perform to US requirements at increased ranges. To meet safety requirements all US rounds have propellant containment bags which have not been incorporated into German production models. We are still considering off-shore procurement of the high explosive round (XM830). A decision will be made by June 1984 and will be dependent on the results of testing that is in progress.

o The fiscal year 1984 procurement of 120mm ammunition is in support of the first year buy of M1E1 tanks. The initial production roll-off of the M1E1 tank is scheduled to occur in August 1985. Subsequently, tanks will be deployed to the training base in the US and Europe beginning in November 1985 and to combat units in the third quarter of fiscal year 1986. The projected requirements for ammunition to support deployment of the first year M1E1 procurement are:

<u>Cartridge</u>	<u>Quantity (THOUSANDS)</u>
XM829	9
XM830	8
XM831	9
XM865	20

The quantities being bought in fiscal year 1984 are reflective of the requirements with the exception of the XM830. Funding constraints in fiscal year 1984 precluded buying more than four thousand rounds. The requirements consider providing an adequate war reserve stockpile of combat rounds and quantities of training rounds to support both institutional and annual combat unit training until the fiscal year 1985 procurements can be delivered to the using units.

o The procurement of 120mm ammunition cannot be delayed and still provide the requirements for training and prepositioning of service rounds to support deployment of the M1E1 tank to the training base and combat units.

Budget Line No. 63,64,65 & 66
Cartridge 120-mm.
E73100, E73200, E73300, E73400

Q. The Army's test and evaluation community non-concurred with type classifying the 120mm ammunition because of unresolved dispersion and chambering deficiencies.

o What emphasis is placed on the non-concurrence during In Process Reviews and why was the ammunition type classified regardless of the test and evaluation community's views?

o To what degree does the dispersion deficiency impact on the effectiveness of the 120mm tank system in terms of hit probability, resupply requirements and tank survivability?

o What is the most likely cause of both the dispersion and chambering deficiencies and what actions are planned to overcome the deficiencies?

A. o The limited procurement type classification for the XM829, concurred in by the developer and the user, was conditionally granted based on improving dispersion. Chambering was not an overriding issue. The In-Process Review (IPR) decision was made from an overall Army perspective. The test and evaluation community's non-concurrence was given emphasis, as evidenced by the condition of improving dispersion. It must be pointed out that the test and evaluation community, as part of their mandate, look only at the testing which they have conducted. The In-Process Review considered all testing, including all development and contractor conducted tests. From an overall standpoint, it was determined that dispersion deficiencies were low risk and correctable.

o Dispersion is only one small component of a weapons system's error budget and should not materially affect system effectiveness and survivability. The dispersion deficiencies previously experienced are being corrected and it is intended to meet the dispersion requirements with the ammunition produced.

o A program to improve the dispersion performance of the XM829 is currently underway. The initial phases have been completed and indicate the parameters identified for modification were correct. Large sample testing by the contractor is scheduled to occur in late April 1984 followed by government testing in May 1984. Type Classification Standard action is planned to be initiated in June 1984. This time frame will enable the tested modifications to be incorporated in production rounds.

Budget Line No. 67
Projectile, 155mm HE, ICM (DP), M483
(E28100)

Q. The Congress has provided funding for this projectile for several years based on assurances from the Army that initial production at the Mississippi AAP was imminent. Still, the Mississippi AAP has not produced any loaded projectiles although the Army is predicting that the plant will reach the minimum sustaining rate some time next year. Given the Army's history of inaccurate production forecasting for the plant, why shouldn't the committee consider the production schedule for the Mississippi AAP as one in a series of overly optimistic production schedules?

A. The original schedule called for Mississippi AAP to achieve operational readiness in January 1984. This schedule was optimistic and milestone was not met due to numerous technical problems encountered in debugging the production equipment in the Projectile Metal Parts (PMPTs) manufacturing facility and the inability of the PMPTs facility forge subsystem to supply a continuous flow of projectile bodies to the remainder of the PMPTs

operations and into the load, assemble, and pack (LAP) facility. These technical problems have been solved to the point that a smooth flow of projectile bodies has been achieved since early January. Since that time, approximately 1,000 rounds have been produced, assembled with inert grenades, and accepted. The original schedules for production have been cut back significantly and replaced with new schedules to reflect problems encountered and realistic expectations for problem resolution.

To assure that the recent progress continues and accelerates, HQ, AMCCOM has instituted a renewed and more vigorous intensive management effort, with monthly status reports provided to CG, DARCOM. The keystone of this effort is the recent successful effort of establishing detailed milestones in the operating contract with incentives and tough penalties. The entire fee potentially available to the operating contractor is thus at risk. The goal is to provide maximum motivation towards success, thereby assuring, as much as possible, realistic schedules, timely completion of the project, and the achievement of operational readiness in August 1984.

Q. The production schedule shows that 95,000 projectiles are scheduled for delivery after the end of the fiscal year 1985 funded delivery period. Even if the production schedule is accurate, it seems the fiscal year 1985 program should be cut by at least this amount. Please comment.

A. Since the submission of the February 1984 M483 schedule, actions have been taken to increase the production rates at projectile metal parts and LAP producers to bring the programs back into the funded delivery period. Louisiana AAP and Chamberlain Corp will be operating on multiple shifts, therefore, allowing Milan AAP and Kansas AAP to produce at a more efficient rate. This will also reduce the unit cost for the round. The fiscal year 1985 program should not be cut.

Q. Producers of empty projectiles for the M483 are operating at a high level. If the Mississippi AAP cannot produce empty projectiles will there be enough empty projectiles available for loading?

A. There is sufficient capability to sustain LAP capability at the load plants other than Mississippi AAP. A minimal quantity of projectiles could be provided to Mississippi AAP in the near future, if necessary, to support loading until they become self sufficient.

Q. If the Mississippi AAP is not able to become self-sufficient and the Army finds it necessary to procure metal parts from another contractor, what is the likelihood that once the plant is able to produce all of its own metal parts the Army will be able to terminate its contract with the new metal parts contractor?

A. Metal parts are being procured from another Government Owned Contractor Operated (GOCO) contractor, not a new contractor. This GOCO contractor is only increasing capacity and can be easily directed to decrease capacity by a Procurement Contracting Officer (PCO) letter. A GOCO contractor cannot produce unless he is funded to produce.

Q. When will production of the M483 be back on schedule?

A. Based on the two initiatives, the M483A1 will be back on schedule by September 1986, and not November 1986 as shown on the P-21 dated February 1984.

Q. What impact will increase emphasis on the light artillery and Multiple Launched Rocket System (MLRS) programs have on workloading of the M483 program? Specifically, if the M483 program requirements are reduced significantly, what will be the impact on the ammunition plants and metal parts producers?

A. The impact is unknown at this time. Information has not been received to evaluate an impact. If significant cuts are received there is a possibility that one or two LAP plants would be impacted and one metal parts producer.

Q. Have the ogive separation and cargo ejection problems been resolved?

A. The ogive separation and cargo ejection problems were a major problem prior to the change from the 51 gram to the 58 gram expulsion charge assembly. Since this change to the M483A1 Technical Data Package (TDP) the problem has been reduced to projectile metal parts (MPTS) produced by one manufacturer. Engineering tests are underway to isolate the factor that causes this manufacturer's product to occasionally experience ejection problems on ballistic test. Preliminary testing has isolated the problem to manufacturing method. Final testing is underway with an estimated completion date of June 1984.

Q. Given the lack of production at the Mississippi AAP, the Committee is surprised that, as of December 1, 1983, about 80 percent of the workforce needed to fully operate the plant were on hand. Please comment.

A. It is true that approximately 80 percent of the total number of personnel necessary to operate the plant are currently on hand. However, it must be realized that significant effort is still ongoing in completion of the project, principally equipment debug and proveout. When the project is complete and the facility fully transitioned into a production status, these personnel will either be transitioned into production positions or replaced.

HQ, AMCCOM has kept a close rein on contractor staffing levels. In fiscal year 1982, when technical problems were preventing progress towards the achievement of production, the contractor's staffing level was frozen for over six months. When the hiring freeze was lifted, a screening program was instituted, which is still in existence today. The program requires the contractor to get Government approval for each additional person hired. In addition, the contractor has, at Government insistence, in December 1983 and January 1984, furloughed employees when temporary periods of production down time necessitated.

Q. How much were personnel costs at Mississippi AAP during fiscal year 1983?

A. Direct labor cost plus fringe benefits was \$4,470,000 for fiscal year 1983.

Q. Is there enough RDX/HMX capacity to meet DOD wide requirements in fiscal year 1985?

A. Yes.

Budget Line Nos. 69, 70, 71 and 72
155mm Area Denial Artillery Munition (ADAM)
155mm Remote Antiarmor Mine System (RAAMS)
(E67100, E67200, E67500, E67502)

155mm Area Denial Artillery Munition (ADAM) (E67100 and E67200)

Q. Despite past assurances that ADAM's problems were being resolved, the projectile is still experiencing production, ballistics testing, and stockpile reliability problems. Why should the Committee consider the current production schedule realistic given ADAM's continuing problems?

A. AMCCOM is currently producing acceptable Area Denial Artillery Munitions/Remote Antiarmor Mine System (ADAM/RAAMS) projectiles. Therefore the schedules presented are realistic.

Q. For years the Army has been giving assurances that ADAM's problems were being resolved. If the system is being debugged, why was it necessary to revise the production leadtimes?

A. Production leadtimes utilized in the budget documentation reflect the overall ammunition policy of 15 months initial leadtime and 12 months reorder. This overall ammunition policy should not have been applied to the ADAM round. Historical data indicates that 16 to 22 months is more realistic due to the long leadtime required for electronic components.

Q. The Committee is aware that disagreement exists within the Army regarding an appropriate ballistics testing procedure and that there is no valid test procedure in place. Why were the requirements changed? What is being done to define an acceptable ballistics testing procedure?

A. There is in fact a valid ballistic acceptance test procedure in place which has been established through normal specification and configuration control systems and approved by the appropriate authorities. The last change, implemented in May 1982, actually increased the ballistic test requirements from the prior version. There have been discussions in various command elements about further changes which may be desirable. There are formal procedures established for processing and approval of changes which will be followed before any implementation.

Q. What is the status of 6,500 rusty projectiles found at the Louisiana AAP? What is the cost of reworking the projectiles and why did the problem occur?

A. A sample of rusty projectiles has been successfully reworked at Louisiana AAP. Pending design agency approval of this process, rework will begin the week of 2 April 1984, at an estimated rate of 210 projectiles per day. The estimated cost of reworking the rusty projectiles is \$23.00 each. Investigation to date has not determined the cause of the rust on the inside of the ADAM projectiles.

Q. The Army has formed a committee to investigate problems relating to the ADAM. One alternative is to halt production, debug the system based on the committee's recommendations, and not resume production until all problems are resolved. When are the committee's recommendations due?

A. The Associate Technical Director of the ARDC's System Development and Engineering Directorate (Mr. V. Lindner) established a committee of working level personnel from various AMCCOM elements and contractors to investigate battery activation and corrosion problems found in some rounds manufactured prior to 1981. A Blue Ribbon committee consisting of senior representatives from selected AMCCOM Dover and Rock Island elements reviewed the available data on 28 February 1984. The Blue Ribbon committee agreed that the problems were not present in current production, that production should continue and that performance improvement of stockpile rounds should be investigated. Results are expected to be available in June 1984.

Q. The Army has been experiencing ADAM projectiles bursting closer to the ground than intended. Has that problem been resolved?

A. The problem has not been resolved. The problem is not considered severe, since the functional effectiveness of the grenade at ground level may be almost equivalent to the grenade at elevation. Neither production acceptance nor Lot Acceptance Test (LAT) is being impacted at the present. Work is being done to attempt to improve the reliability of the explosive train (including the delay detonator assembly) to decrease the rate of occurrence of close to ground functioning. A parallel effort is under way to determine the real change in effectiveness which can be attributed to ground level functioning versus functioning at the prescribed elevation.

Q. What impact will increased emphasis on the light artillery program have on the ADAM?

A. The requirement for the long delay self destruct model is expected to decrease while requirements for the short delay self destruct model will increase. Overall, the combined total requirement is expected to increase. This is principally driven by a recent doctrinal shift in the mix of ADAM to RAAMS projectiles used in the final volley of counterfire missions from a ratio of 1 ADAM to 2 RAAMS to a ratio of 3 ADAM to 1 RAAMS.

155mm Remote Anti-Armor Mines System (RAAMS) (E67500 and E67502)

Q. The production schedule shows a 1-8-5 production capacity of 7,700 projectiles as of January 1, 1985 - up from 3,000 a month. Yet the production output does not significantly increase. Why isn't production expected to increase with the increased production capacity?

A. The Remote Anti-Armor Mine System (RAAMS) production facility at Iowa Army Ammunition Plant consists of three major components - the Main Charge Press Line, the Mine Subassembly Line and the Load, Assemble and Pack (LAP) Line. The existing production facility is unbalanced with the LAP line having a capacity of 7,700 per month on a 1-8-5 basis, while the capacity of the other two lines is approximately half that amount. Production capacity is being raised in incremental amounts throughout 1985 with the objective of obtaining a balanced facility with a 1-8-5 rate of 7,700 per month in all areas by 1 January 1986. The Main Charge Press Line is required not only for RAAMS, but also for all other family of scatterable mine (FASCAM) items utilizing the common anti-armor main charge. While present requirements do not support increased production, further expansion of the press capacity is planned beyond 1985 to support anticipated requirements for items such as GATOR, Ground Emplaced Mine Scattering System (GEMSS) and VOLCANO.

Q. The production schedule shows production in excess of the 1-8-5 rate through calendar year 1984 and close to the minimum sustaining rate through calendar year 1987. Wouldn't it be more cost effective to run the program at a constant 1-8-5 rate?

A. Yes, however, only the current subassembly area rates exceed a 1-8-5.

Q. Past performance and continuing production problems indicate that the current production schedule may be optimistic. Please comment.

A. The production schedules for calendar year 1983 were met. There were no problems with components that impacted LAP. No production problems are expected to impact future production schedules. The current production schedule for RAAMS at Iowa AAP is not considered too optimistic.

Q. About 88,000 safety and arming devices were in a reject or hold status. Has the problem with the devices been resolved? Who is reworking the defective safety and arming devices? Was a cost comparison prepared showing cost to rework by the Iowa Army Ammunition Plant (AAP) and by the manufacturer?

A. The source of the Flex-Cable used on the RAAMS Safety and Arming device (S&A) has been changed and an additional inspection operation has been implemented. Current S&A lots are satisfactory. The problem has been resolved. Action Manufacturing Company is reworking the S&A's. No detailed cost comparison of rework was prepared since Iowa AAP was not experienced at reworking this type of item. An informal cost estimate was obtained from Iowa AAP which indicated a higher cost of rework than the estimate from Action Manufacturing Company.

Q. Why did the Army allow some 2,800 projectiles in Europe to rust?

A. Based upon the most recent (31 December 1983) ammunition serviceability report submitted by Europe, the Army has not allowed 2,800 projectiles to "rust." As of that report date, there are just 1,305 projectiles in Europe which are unserviceable. Ninety-eight percent of these projectiles were placed in unserviceable condition due to lifting plug mechanical test failure. There are an additional 5,352 projectiles in Europe which are suspended from issue and in process of transfer to an unserviceable condition because of the lifting plug being cracked or split. These rounds, both the 1,305 quantity and the 5,352 quantity will have the lifting plugs replaced and will again become fully serviceable for unrestricted issue and use.

Since there is no reference to the 2,800 "rusted" projectiles in the official ammunition serviceability report from Europe, it is presumed that the rusted condition is described in some technical report or paper and described as incidental in nature, not causing unserviceability of the rounds to the extent that a corrective measure or procedure is required.

Q. What impact will greater emphasis on the light artillery program have on requirements for RAAMS?

A. Some reductions are expected in RAAMS requirements. This is due to increased emphasis on other scatterable mine systems such as Ground Emplaced Mine Scattering System (GEMSS), Modular Pack Mine System (MORMS), and Universal Mine Dispensing System (VOLCANO).

Budget Line No. 73
Copperhead 155-mm. Projectile

Q. As of February 1984 the Army was still negotiating for the number of projectiles it could purchase with its fiscal year 1983 and fiscal year 1984 funds. The fiscal year 1985 budget request of \$102.8 million for 2253 projectiles results in a unit cost of \$45,628. Considering the uncertainty of how many projectiles can be purchased with fiscal year 1983 and fiscal year 1984 funding, what assurance is there that the number of projectiles to be purchased with fiscal year 1985 funds is reasonable?

A. The quantity estimates for fiscal year 1983 and fiscal year 1984 (1100 and 1415, respectively) are based on known production costs and supported by a recent government "should cost" study of Copperhead production. As reports are received about ongoing contract negotiations, it is very probable that actual unit costs and quantities will be equal to or better than estimated. The data used to estimate fiscal year 1983 and fiscal year 1984 program requirements was also used to develop our fiscal year 1985 estimate. Therefore, the fiscal year 1985 estimate is considered to be accurate. And, the fiscal year 1985 program can be executed as planned, provided funding is available by October 1984.

Q. The most economical rate of production is a generally accepted measurement of efficient production. In lieu of this the minimum sustaining rate of production is the lower limit of efficient production. Copperhead's highest planned rate of production will not exceed 46 percent of its minimum sustaining rate.

o Are the existing production facilities capable of producing 700 Copperhead's per month and, if not, what is the maximum rate and what are the constraining factors?

o Explain the rationale for limiting production to 247 or less projectiles a month.

o What is the impact on unit cost of producing projectiles at rates so far below the most economical rate of production of 700 projectiles per month?

A. o Copperhead's production was facilitized for a rate of 700 rounds per month and the capability still exists.

o Copperhead's production is limited to 247 rounds/month due to budget constraints.

o Producing Copperhead at 200 rounds per month rather than 700 rounds per month increases the per round cost approximately 25%.

Q. Has the Army determined that using Copperhead in new ways can reduce the need for conventional ammunition and therefore release funds to procure more Copperhead projectiles?

A. A past internal study indicated that when Copperhead's use is extended beyond firing against tanks, the friendly-enemy loss exchange ratio swings more in our favor. Because these findings were preliminary, there was no reallocation of funds to increase Copperhead beyond its present procurement of 30,812 rounds. However, if findings from current ammunition rate studies and Copperhead's actual performance in the forthcoming FIST FDTE II still indicate we ought to buy more Copperhead rounds, it is not likely a reallocation of funds would occur until other artillery ammunition, such as dual-purpose ICM, have reached their required stockage levels first.

Q. Has the Army determined that competition in the Copperhead program is viable and what quantities must be procured to make this cost effective?

A. The Army completed a study on introducing competition into the Copperhead program and submitted those findings to Congress in December 1983. The results indicate a total procurement between 52,000 and 60,000 rounds could support competition. Since the funded level supports a buy of 30,812 rounds, competition is not viable at this time.

Budget Line No. 75
Projectile, 155mm Chem GB-2

Q. Will all facilities needed to produce this projectile be available in time for production of the FY 1985 program?

A. Yes. The fiscal year 1985 program consists of long lead time components only.

Budget Line Nos. 78, 79 and 81
155mm Propelling Charges, M3A1, M4A2, M119A2
(E27201, E27301, E27100)

Q. What is the forecast inventory position for the M3A1, M4A2, and M119A2 propelling charges at the end of the fiscal year 1985 funded delivery period (August 1, 1986)?

A. The following is the forecast inventory position for the M3A1, M4A2, and M119A2 at the end of fiscal year 1985 funded delivery period (FDP) (August 1, 1986):

<u>PROP CHG</u>	<u>INV POSITIONS</u>
M3A1	2,168,000 each
M4A2	6,766,000 each
M119A2	4,502,000 each

Q. How does the projected inventory position at August 1986 match with the projected inventory positions of projectiles which use the M3A1, M4A2, and M119A2 propelling charges? What percent of each of those projectiles uses the M3A1, M4A2 and the M119A2?

A. The projected inventory postures as of August 1986 for the M3A1, M4A2, and M119A2 propelling charges are as follows:

<u>PROP CHG</u>	<u>POSTURE</u>
M3A1	-76,000 short
M4A2	+569,000 over
M119A2	-183,000 short

Q. What percent of each projectile uses the M3A1, M4A2, and M119A2?

A. The following list contains the currently authorized projectile/propelling charge combinations and prop charge percentages which are utilized to develop procurement programs:

<u>PROJECTILE</u>	<u>M3A1</u>	<u>M4A2</u>	<u>M119A2</u>
ADAM M692	32%	45%	28%
ADAM M731	32%	45%	28%
RAAMS M718	32%	45%	28%
RAAMS M741	32%	45%	28%
ICM M483	19%	38%	48%
HE M107	14%	34%	57%
TNG M804	14%	34%	57%
IILLUM M485	34%	51%	20%
SMK WP M110 Series	32%	45%	28%
RAP M549			105%
RAP M549 F/M198 HOW			65%
The M203 is supplied for 40% of RAP M549 F/M198			
CHEM (Unitary)	35%	70%	
CHEM (Binary)	19%	38%	48%
HC M116A2	32%	45%	28%
HE M449	19%	38%	48%
HE M712	40%	45%	20%
SMK M825	32%	45%	28%
PEACETIME TNG			
REQUIREMENT	70%	30%	

Budget Line Nos. 78, 79 and 81
155mm Propelling Charges, M3A1, M4A2, M119A2
(E27201, E27301, E27100)

- Q. We note a sharp increase in quantities for 155mm propelling charges in general in the fiscal year 1985 program. Will the program size necessitate multiple shift operations at the Indiana Army Ammunition Plant? Will additional personnel need to be hired? If so, will the personnel level remain constant beyond the fiscal year 1985 funded delivery period? Will overtime be authorized to meet delivery schedules?
- A. No additional personnel will be required to produce the fiscal year 1985 program, but based on projection of fiscal year 1986 -fiscal year 1990 quantities, it is anticipated that personnel levels will decrease after delivery of the fiscal year 1985 program. Current production rates are achieved by operating two load, assemble, pack lines one shift. No overtime is expected.
- Q. Does the Army plan similar program quantities for future years or will production drop significantly?
- A. The combined Army planned procurement profile for 155mm propelling charges for fiscal year 1985 thru fiscal year 1989 is as follows:

Fiscal Year	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Quantity (Thousand's)	2,619	2,504	1,407	1,562	2,982

Budget Line No. 80
155mm Propelling Charge, Red Bag, M203
(E27303)

- Q. Please provide projected inventory position for the M203 propelling charge at the end of FY 85 FDP (Sep 86).
- A. The projected inventory position for the M203 propelling charge at the end of fiscal year 1985 FDP (September 1986) is 106,000.
- Q. How does the projected inventory position at the end of FY 85 FDP match the projected inventory position of the projectile(s) which use this charge?
- A. Currently the M203 propelling charge is certified only with the RAP M549. The inventory position for the RAP M549 at the end of the fiscal year 1985 FDP is 35,000 each versus an inventory position on the M203 propelling charge of 106,000 each. This creates a posture of 71,000 prop charges over at the end of the fiscal year 1985 funded delivery period.
- Q. Will the new configuration be compatible with any projectiles other than the rocket assisted 155mm M549 projectile?
- A. The M203 is not compatible with M549 but is with M549A1 155mm HERA Projectile, M825 155mm Smoke (WP) Projectile, and M795 155mm HE Projectile.
- Q. Please explain the intended use of the FY 85 buy for the M203 propelling charge.
- A. The fiscal year 1985 buy of the M203 is for the new stick propellant version. The fiscal year 1985 buy on the M203 propelling charge is a one time buy to cover losses and balance to projectile posture through the POM period. In addition, the new stick propellant will have a significantly reduced flame temperature which will provide several user benefits, i.e., increased tube life (expected to last twice as long with stick propellant). The stick propellant charge will also reduce muzzle blast and create less flash. The one time fiscal year 1985 buy will eliminate the need for multiple shut down and start up of the production line and cost associated there with. The early buy will achieve the readiness improvements during the near term rather than postpone them.

Budget Line No. 83
Projectile 8-Inch, HE, ICM (DP), M509
(E67000)

Q. The Congress has provided funding for this item each year since fiscal year 1981. In fact, the Army has funding for 332,000 projectiles in fiscal year 1981 through 1985 programs. Further, the Marine Corps has funding for 71,000 projectiles in fiscal year 1984 and prior year programs. Yet, no projectiles have been produced for the stockpile. Each year the Army provides production schedules which show that initial production is imminent and a year later there is still no production. The production schedules supporting this year's request are similar to past years—buildup of production over the near term and getting on schedule in a few years by maintaining production at a fairly high level. Given the Army's record of inaccurate production forecasting for this item, why shouldn't the Committee consider this year's production schedule as one in a series of overly optimistic production schedules?

A. Production on the M509 started 27 February 1984. The schedule presented will be achieved barring any unpredictable incident that may occur in the future.

Q. Even if the production schedules are accurate, 44,000 projectiles are scheduled for delivery after the end of the fiscal year 1985 funded delivery period. It seems the fiscal year 1985 program should be cut by at least this amount. Please comment.

A. The Army has an urgent need for the second generation ICM round in order to sustain the combat needs in the 8-inch artillery family. The current worldwide asset is zero. The acquisition profile as structured with the fiscal year 1985 program left intact fails to meet the defense guidance levels at the end of fiscal year 1988 FDP. Any decrease applied to the fiscal year 1985 program would further degrade the Army readiness posture of this round and limit the Army's go-to-war capabilities in the 8-inch family.

Q. The production schedule shows that much of the Army and Marine Corps fiscal year 1984 program quantities will be delivered during the fiscal year 1985 funded delivery period. Why doesn't the Army delete the fiscal year 1985 program and maintain production continuity with the fiscal year 1986 program by stretching fiscal year 1984 and prior year program deliveries through September 1986? It appears this could be done quite easily by producing the fiscal year 1983 and prior year programs on one line, thus gaining production experience and expanding to dual lines for the fiscal year 1984 program.

A. It is not economically feasible to delete the fiscal year 1985 program and stretch the fiscal year 1984 program through September 1986. Decreasing the monthly delivery schedule at the metal parts and LAP plants will drive up the unit cost, for the end round. Lone Star has produced M483 for approximately 8 years. The M509 uses the same equipment and basically the same components as the M483A1. The reason for the build up in schedule was for the purpose of phasing out M483A1 production and phasing in M509 production at optimal cost without personnel turbulence, and staffing of the second line. It is a proven fact that a higher production rate produces a lower unit cost.

Q. What are the current estimated savings of using a threaded base plate instead of the drill and pin version?

A. Estimated savings of using a threaded base is a minimum of 38 dollars per round.

Q. The Committee is aware that thousands of empty projectiles have been produced so backlog is not a problem. What projectile quantities must be maintained in the fiscal year 1985 program to preclude production breaks for both producers? Each producer?

A. A total of 148,000 projectile metal parts are required to preclude production breaks. Approximately 60,000 for Scranton AAP and 88,000 for Norris, Ind. These quantities will maintain a stable workforce without impacting cost.

Q. Has the cause of the inbore which occurred during ballistic testing in July 1983 been determined?

A. An investigation was initiated by ARDC, Dover, to determine the cause of the malfunction. The results of the investigation did not isolate the cause, but did lead to several projectile modifications. Those modifications included lengthening the adapters, reducing the thickness of the pusher plate, and replacing the taped cover on the cup loading assembly with a new PA530 Booster Assembly employing a crimped cover. A sample of 160 M509A1 Projectiles containing those modifications was sent to Yuma Proving Ground (YPG) for confirmatory safety testing in accordance with a revision to TPR LCU-M-2877.

The confirmatory safety test of 110 projectiles was initiated in October 1983 and completed in January 1984. All projectiles were subjected to various prefiring environments (vibration, bounce, drop, and temperature storage) at temperatures of -60°F or 145°F. One hundred fifty-seven projectiles were fired at temperatures of -50°F and 145°F, in some cases with excess propelling charges. One projectile was not fired because of an excessive gap (0.384 inches) between the ogive and body that resulted from a 7 foot drop. The other two projectiles were shipped to Lone Star AAP (LSAAP) for downloading and examination.

No malfunctions occurred during the prefiring environmental phases. The teardown at Lone Star AAP revealed no problems. Results observed during the weapon firing tests were generally satisfactory as no malfunctions were observed. TECOM has provided statements for the safety release. Specifically, the M509A1 Projectile assembled with a threaded base is safe to store, handle, and transport at temperatures between -60°F and 145°F. Also, the M509A1 Projectile assembled with a threaded base is launch and flight safe when fired from the M110A2 Howitzer using the M1, M2, or M188A1 propelling charges at temperatures between -50°F and 145°F.

Q. What impact will increased emphasis on 105mm artillery and introduction of the Multiple Launched Rocket System have on the M509A1?

A. Unknown at this time. Information has not been furnished to evaluate an impact.

Budget Line No. 84
Projectile, 8-Inch, HE, RAP, M650
(E66600)

Q. The Congress has provided funding for 91,667 8-inch M650 projectiles for the FY 83 and prior year programs. The Army has provided production schedules each year showing that production at a 1-8-5 rate was imminent, yet production from the inception of the program through calendar year 1983 has been maintained at less than the minimum sustaining rate. Given the Army's inaccurate production forecasting record, why should the Committee consider the current production schedule realistic?

A. In December 1983, a new PA524 Booster Assembly was incorporated into the LAP line at IAAP correcting the last known problem. The production schedule at IAAP has been increased to the 1-8-5 rate and met starting January 1984. Based on all known facts at this time, the forecasted schedule is considered realistic.

Q. Given the Army's record of inaccurate production forecasting for this item, why doesn't the Army consider reducing or eliminating the FY 85 buy and maintaining production at the minimum sustaining rate through the fiscal year 1985 funded delivery period? This would allow time to ensure that all problems have been debugged and to stabilize production.

A. Eliminating the fiscal year 1985 buy would cause all four commercial MPTS producers and two GOCO lines to go cold. Considerable layaway and startup cost would occur. There are no known production problems at this time to limit production rates at IAAP and the schedule is considered stabilized.

Q. It would appear that the fiscal year 1985 program is not necessary since it is only being run for eight of the twelve months in the funded

delivery period and then at or below the minimum sustaining rate. Army officials stated that the buy is necessary to maintain a warm production base for metal parts. What premium will be paid for running at or below the minimum sustaining production rate?

A. The premium paid for running at or below the minimum sustaining production rate would be approximately an 8 percent increase to the end item unit price.

Q. Thousands of metal parts have been produced but not assembled into loaded projectiles. How many projectiles are needed in the fiscal year 1985 program to maintain a warm production base for metal parts?

A. Eighteen thousand.

Q. What premium has been paid for producing the M650 at the Iowa Army Ammunition Plant at less than minimum sustaining rate since the start of production through calendar year 1983?

A. None. By reducing the staffing and working a batch type system, IAAP was able to utilize the direct labor people so that an increase in direct labor cost was not experienced. The batch type system utilized allowed the production direct labor force to follow the product through the production process.

Budget Line No. 85
Propelling Charge, 8-Inch, White Bag, M188A1
(E29202)

Q. Please provide the projected inventory position for the M188A1 propelling charge at the end of the fiscal year 1985 funded delivery period (September 1, 1986).

A. The projected inventory for the M88A1 propelling charge at the end of the fiscal year 1985 funded delivery period is 732,000.

Q. How does the projected inventory position at September 1, 1986 match with the projected inventory positions of projectiles which use the M188A1 propelling charge? What percentage of those projectiles uses the M188A1 propelling charge?

A. At September 1, 1986 there is a shortage of 167,000 propelling charges against projectile assets.

The percentage of projectiles using the M188A1 propelling charge is as follows:

Item: Projectile, M650 RA	105 percent
Item: Projectile, M509, ICM	72 percent
Item: Projectile, M106 HE	50 percent

Budget Line No. 86
Fuze, Proximity, M732
(E62704)

Q. Please provide the projected inventory position for the M732 fuze at September 1986, i.e., after scheduled completion of the fiscal year 1984 program.

A. The projected inventory proximity fuzes at the end of the fiscal year 85 funded delivery period is 8,327,000 each. This quantity includes both M728 proximity fuzes and M732 proximity fuzes.

Q. How does the projected inventory position at September 1986 match with the projected inventory position of projectiles which use the M732 fuze?

A. The projected inventory at October 1, 1986, of projectiles which use proximity fuzes is 22,397,000 each. This projectile stockpile has various percentages of use as reflected below.

Item	Qty	Prox % Of Use	Prox Fuze Rgmt
8" Chem Proj	67,000	40.00	27,000
155mm Chem Proj	426,000	27.00	115,000
175mm HE M437	366,000	40.00	146,000
105mm HE M1	12,654,000	16.98	2,149,000
8" HE M106	1,252,000	97.30	1,218,000
8" HE RAP	89,000	56.08	50,000
155mm HE M107	5,574,000	74.75	4,166,000
4.2" HE M329 Series	1,422,000	17.85	254,000
155mm HE RAP	519,000	58.00	301,000
155mm HE M101	28,000	55.00	15,000

Total fuze objective at Sep 86	8,441,000
Total M728/M732 fuzes at Sep 86	8,327,000
M728/M732 fuze shortfall at Sep 86	-114,000

Budget Line No. 86
Fuze, Proximity, M732
(E62704)

Q. We have information that requirements for this fuze are decreasing significantly. If so, the FY 85 buy may not be warranted. Please comment.

A. We will be approximately 114,000 proximity fuzes short to our near term requirement at the end of the FY 85 funded delivery period. As a result we feel the FY 85 program is necessary to maintain our near term readiness posture. There are various studies being conducted at the DA staff level concerning implementation of a new light division concept. With the implementation of the light division concept it is probable that a significant shortage of proximity fuzes will be created in the outyear, FY 86 through FY 90. The current proximity fuze percent of use for the 105mm HE M1 is 16.98 percent. This is significantly lower than the 74.75 percent authorized for the 155mm HE M107 and the 97.3 percent authorized for the 8" HE M106. If the proximity fuze percent of use is increased under the light division concept comparable to the 155mm HE, we would be faced with an immediate and significant shortage of proximity fuzes considering the existing stockpile of 13 million plus 105mm HE M1 projectiles.

Q. Will the power supply need to be redesigned? If so, what level of confidence exists that the new configuration of the fuze which was to have been introduced this year will be compatible with a newly designed power supply?

A. Yes, the power supply will need to be redesigned. The level of confidence that the new configuration of the fuze will be compatible with the newly designed power supply is extremely high. All concepts under investigation will conform to the existing PS115's exterior dimensions and tolerances. The product improved version of the M732 fuze retained the same power supply dimensions.

Budget Line No. 88
Fuze, Mechanical Time, M577
(E61302)

Q. What is the projected inventory of the M577 mechanical time fuze at the end of the fiscal year 1985 funded delivery period 1 October 1986?

A. The projected inventory of mechanical time fuzes at the end of the fiscal year 1985 funded delivery period ending 30 September 1986 is 6,106,000 each. This projected quantity includes fuze MTSQ M577 and the older generation fuzes MT 565 and fuze MT M548.

Q. What is the projected inventory at October 1, 1986 of projectiles which use this fuze?

A. The projected inventory at October 1, 1986, of projectiles which use this fuze is 6,086,000 each. The authorized stockage level of fuzes to projectiles is 105 percent x 6,086,000 projectiles equals a fuze stockage objective at October 1, 1986, of 6,390,000 each. The following listed projectiles are contained in this projected stockpile:

Item	Qty
Projectile 155mm ICM M449	1,354,000
Projectile 155mm ICM M483	3,421,000
Projectile 8 Inch HE M404	124,000
Projectile 8 Inch ICM M509	498,000
Projectile 155mm ADAM M731	60,000
Projectile 155mm ADAM M692	40,000
Projectile 155mm RAAM M741	151,000
Projectile 155mm RAAM M718	83,000
Projectile 155mm Smk M825	49,000
Projectile 155mm Illum M485	205,000
Projectile 155mm HC BE M116A2	101,000
 Total Projectile	 6,086,000
x 105 percent	304,000
Fuze Objective	6,390,000

Budget Line No. 88
Fuze, Mechanical Time, M577
(E61302)

Q. Given current ballistics problems, past production history, and the introduction of a new configuration, isn't the production schedule optimistic?

A. No. Although Bulova had two ballistic failures and Hamilton had one failure, which was accepted on waiver, the failures have not stopped production. Past production for the last 14 months has averaged 75,000 per month. Introduction of the new configuration is not anticipated to cause any production slippages. The production schedule is not overly optimistic since both producers will be increasing their production capabilities by expanding their lines. The new configuration makes it easier to manufacture.

Q. If the production schedule is accurate, will the M577 lines be laid away in the future?

A. Yes. The FY 88 program is projected to be the last buy for the M577. This fuze is being replaced by the XM ET fuze. It is not known at the present time if portions of the M577 Fuze line could be utilized on the XM762 ET fuze. If not, the lines will be laid away.

Q. Given the relatively good inventory position of this fuze, should production be lowered in order to maximize cost savings from the new configuration?

A. No, even though we are in a relatively good inventory position at the end of the FY 85 funded delivery period, we have not reached the authorized posture of 105 percent of existing projectiles. The fuze posture remains 284,000 short of the desired objective. Any fuze posture which is less than 105 percent of the authorized on hand projectiles is not an acceptable readiness posture as this limits flexibility of use within theaters.

Budget Line No. 89
Fuze, Mechanical Time Superquick, M582
(E61503)

Q. Please provide the projected inventory position for the M582 fuze at the end of the fiscal year 1985 funded delivery period (September 1986).

A. The Army's only need for the M582 fuze is for application with the 8 inch M650 rocket assisted projected in its role as a registration round for the 8 inch nuclear projectile. There is a requirement for 30,000 of the M650 projectiles for use as nuclear registration rounds. The projected

September 1986 inventory posture for both the projectile and the fuze is balanced at 30,000.

Q. How does the projected inventory position at September 1986 match with the projected inventory positions of projectiles which use the M582 fuze?

A. The projected inventory position of M582 fuze at September 1986 is in balance with the projected projectile requirement of 30,000 each M650 8 inch RAP projectiles. These projectiles are required for 8 inch nuclear projectile registration rounds.

Q. Wouldn't consolidation of the fiscal year 1985 and 1986 buys result in a more efficient production schedule?

A. No. Consolidation of the fiscal year 1985 and fiscal year 1986 buys would be a more efficient production schedule if load, assemble, and pack (LAP) was the driver. However, the M577 fuze, which is produced by Bulova and then sent to Milan AAP for LAP, is the driver. Milan LAPs the M582 at a minimum of 40 thousand per month on the same line with the M739 PD Fuze.

Budget Line No. 112
Fuze, Hand Grenade, Practice
(E31900)

Q. The asset position for the hand grenade fuze will exceed the inventory objective if the FY 1985 is funded as requested. Why is the Army requesting more funding than needed?

A. The Army's fiscal year 1985 buy was structured to attain the minimum procurement quantity (MPQ). A subsequent downward revision to the MPQ will now facilitate a reduced Army program. It is proposed that the fiscal year 1985 Army procurement program be reduced to a quantity of 1.189 thousand which will meet the inventory objective at the end of the fiscal year 1985 funding period.

Budget Line No. 113
Smoke Pot HC
(E42900)

Q. It appears that production problems will hold consumption down to a total of about 50,000 or 60,000 M5 smoke pots during fiscal years 1984 and 1985, and that inventory after the fiscal year 1984 buy is delivered will exceed fiscal year 1986 training requirements plus the 90 day depot level inventory objective. Why is a fiscal year 1985 buy needed?

A. The previous and current training have been constrained because of production difficulties. The production problems (technical data, igniter mix pressing procedure and metal parts availability) have been resolved. The fiscal year 1985 and prior year buys will be delivered within fiscal year 1985 leadtime. The fiscal year 1985 buy is required to support fiscal year 1986 training needs, and will not constrain fiscal year 1984 and fiscal year 1985 consumption.

Budget Line No. 116
Cartridge Anti-Tank Simulator (ATWESS)
(E70600)

Q. Is the fiscal year 1985 program justified based on past training usage and probable future training consumption? Please furnish supporting data.

A. The fiscal year 1985 Army Procurement Program totals 890,000 units. Past training usage has been substantially less than this amount due to a number of factors. First, training was restricted due to insufficient assets and low monthly rates of new production. As a result, the ATWESS was CALS allocated until August 1983. Second, the MILES System in which the ATWESS is extensively used, has not been fully fielded. Future training consumption is projected to total in excess of three million per year during outyears fiscal year 1986 through fiscal year 1989. Based on these factors, the fiscal year 1985 program is justified.

Composition C-4 Production Line Holston AAP
Project 5852054

Q. A waiver for the final design for this project is being requested based on its urgency to satisfy Five-Year Defense Plan buys which the Defense Review Board states is needed to store RDX/HMX explosive. However, a significant part of the modernized capacity will be required to support procurement of the Mine Clearing Line Charge System. How does the Defense Review Board statement justify a final design waiver for this project since most of the increase capacity will be required for the Mine Clearing Line Charge System production?

A. - The largest single requirement studied by the DRB was the need to acquire stockpile for war reserve. The need to meet current requirements driven by MICLIC compounds the need to expand Composition C-4 capability.

Q. Describe specifically how this project will enable stockpiling of RDX/HMX explosives?

A. - Without Project 5852054, projected FY 87-89 buys cannot be produced. Currently approximately 6 million pounds per year Comp C-4 can be produced by workloading lines 3, 4, 5, and occasionally line 6. Line 8 when modernized will add 7.8 million pounds per year current specification Comp C-4. There is also an ongoing effort to determine whether the current specification for Comp C-4 can be revised to use 100 percent nominal Class 1 RDX in lieu of a blend of 75 percent nominal Class 1 RDX and 25 percent Class 5 RDX. The objective is to reduce costs by eliminating the more difficult to produce Class 5 RDX from the formulation. If this effort is successful then modernized line 8 will be able to produce 18 million pounds per year Comp C-4. Using line 8 plus the additional capacity from workloaded lines 3, 4, and 5 will satisfy the planned FYDP stockpile of 20 million pounds in 1989. If this effort does not prove successful an additional recrystallization building near line 8 will need to be constructed under a future year project to satisfy the 1989 requirement.

Q. Is waiving the Congressionally established policy relative to final design a beneficial precedent to establish since informed programming and funding decisions require reliable cost estimates?

A. - A waiver should be requested in only extreme circumstances where the delay in funding execution of a project will have a severe impact on readiness. It is always best to have firm cost estimates available when budgets are being established to avoid or minimize reprogramming actions in the future. However, DOD has determined it is in the best interest of national security to accelerate the modernization of our single existing US production base for RDX/HMX explosives as soon as absolutely possible in order to meet the stockpile requirements (FY 85-89) and improve readiness. As a result that project as well as several other FY 85 and FY 86 projects at Holston AAP would need to be budgeted as an exception to the norm. The design work would have been completed in a timely manner under the original time schedule. Expediting the project requires waiver to established policy.

Q. In the event final designs meet Congressional policy, i.e. prior to funding request, what tasks are completed prior to receipt of funding about 1 year later?

A. - This waiting period is used for preparation of procurement packages and final project execution planning. In some cases a value engineering study may be conducted during this "waiting" period.

Q. To what extent has cost estimates based on final designs minimized cost growth in the Army's modernization and expansion program and assured that adequate funding for projects is requested?

A. - The Congressional requirement for Final Design Cost Estimates is fully supported by the Army and has greatly enhanced the manageability of the modernization and expansion program. The discipline introduced by the final design cost estimate requirement has greatly assisted in minimizing cost growths, i.e. cost avoidance, thus greater stability in cost estimates.

Q. To what extent has final designs insured a project is cost effective and feasible prior to committing resources?

A. - For modernization projects driven by cost, the better estimate allows a much more definitive cost analysis to be performed. The level of design is proportionate to the validity of costs; however, this question cannot be quantified. Cost effectiveness and feasibility studies are conducted as normal procedures on all modernization projects. A final design ensures the best assurance of cost validity and as such enhances our analysis.

Q. Some uncertainty seems to exist over whether the nominal Class 1 explosive to be produced by the modernized line at Holston will be extrudable. If the studies being conducted at Milan and Louisiana prove that the nominal class/explosive is not extrudable what alternatives are planned?

A. - The process step affected by the nominal Class 1 RDX question is the recrystallization building on line 8. Building G-8 could process 18 million pounds per year Composition C-4 if nominal Class 1 RDX only is used. If both nominal Class 1 RDX and nominal Class 5 RDX must be used in the formulation then only 7.8 million pounds per year can be processed on line 8. An additional recrystallization building would need to be constructed under a future year project near line 8 to relieve Building G-8 and other G buildings workloads to produce Composition C-4 during the FYDP period.

For long range planning it should also be recognized that the very high mobilization requirements for Composition C-4 will require the construction of additional Composition C-4 facilities at locations other than Holston AAP.

Q. What is the status of the (extrusion) studies and when will results be available?

A. - Studies at Milan AAP have shown the Comp C-4 using only nominal Class 1 RDX can be extruded for use in the MICLIC with proper die and cutter adjustments. Production at full rate and meeting end items performance requirements with all nominal Class 1 RDX still needs to be demonstrated.

Studies currently being conducted at Louisiana AAP will be completed May 1984 and will show whether Comp C-4 using all nominal Class 1 RDX can be extruded for M112 Demolition Blocks.

Additional studies will be completed in May 1985 demonstrating that Comp C-4 from nominal Class 1 RDX can be repeatedly extruded at production rates and produce material meeting end item performance requirements.

Q. The modernized line at Holston will be designed to meet the bulk of the planned Five-Year Defense Plan buys through 1988. However, in 1989 the Holston line can only satisfy 40 percent of the planned buy. What are the Army's plans to meet the 1989 planned buys?

A. - The Army plans to use modernized line 8 in addition to lines 3, 4, 5 and occasionally line 6. Additional recrystallization building will be constructed in future year projects if required to satisfy the 1989 requirements.

Q. What causes the 1988 buys to increase significantly over the 1989 buys?

A. - The plan to produce 20 million pounds of Composition C-4 in addition to the C-4 composition required to meet fiscal year 1989 planned buys.

Q. Provide the most current allocation of the planned buys in 1987-89 between the various munitions and for stockpiling purposes.

<u>DODIC</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>
M023 Chg Demo	223.5	251.5	250.2
M757 Chg Assy Demo M183	0	121.9	0
M913 Linear Chg HE	9023.1	8335.3	10176.4
M792 Chg Demo M138	430.0	430.0	215.0
Stockpile			20000.0
Total	9676.6	9138.7	30641.6

(Thousands of pounds per year)

This data is from the "US ARMY FYDP 84-89," published Jan 84 and updated by 8 Mar 84.

Mine Clearing Line Charge (MICLIC)

Q. The Army has determined that a 1960's developed system, Mine Clearing Line Charge (MICLIC), should be procured in 1985 and beyond in lieu of a new system the Surface Launched Unit Fuel Air Explosive (SLUFAE). What mine field clearing systems have been procured since the MICLIC was developed?

A. The Mine Clearing Roller was procured in FY 1978. This system is a track wide mine clearing roller that is mounted upon and pushed by a tank. The Mine Clearing Roller is again scheduled for procurement in FY 1984 thru FY 1988

Q. What are the specific reasons the MICLIC was chosen over the SLUFAE?

A. While the basic explosive line charge was developed in the 1960's, MICLIC is an updated system developed by the US Marine Corps. Included is a trailer mounted launcher, a new fuze system and an improved Mark 22, Mod 4 rocket. The new MICLIC is a very mobile, effective mine clearing system.

Given the problems of mine detection from a stand off location, which is required for SLUFAE, and the logistics support requirements of the relatively complex SLUFAE system, SLUFAE has not attained sufficient priority to receive production funding in a constrained Army budget.

Q. Provide total research and development and facilities funding invested in the SLUFAE system.

A. Total R&D funding for SLUFAE is \$29.4 million. Total facilities cost for SLUFAE is \$15.1 million.

Q. What mine clearing systems are currently under development and when will they be fielded?

<u>A. SYSTEM</u>	<u>PROJECTED FIELDING DATE</u>
Mine Clearing Roller (M60 Tank)	FY 83 (Actual)
(M1 Tank)	FY 88
Mine Plow (M60 Tank)	FY 86
(M1 Tank)	FY 89
Mine Clearing Line Charge (MICLIC)	FY 86
Robotic Obstacle Breaching Assault Tank (ROBAT)	FY 88
Vehicle Magnetic Signature Duplicator (VEMASID)	FY 92

Q. Describe the current method of clearing mine fields.

A. Current mine field clearing capabilities are limited to detection with hand-held equipment followed by hand removal or explosives destruction.

Q. What alternative explosive fills are available for the MICLIC system?

A. Rather than C-4, it would be possible to use COMP-B, containing aluminum as the UK does in its line charge, but this does not solve the C-4 production problem as both are RDX based explosives. RDX is in short supply because of limited US production capability. Substitution of a non RDX based explosive such as TNT would decrease the "cleared path" effectiveness, as TNT is a weaker blast and impulse producer. Substituting a commercial nitrate based explosive would not result in an effective or acceptable HE fill for the same reasons.

Coal Handling Improvements
Project 5852199

Q. An entirely new coal handling system is planned at Holston because of the existing system's age, downtime, maintenance costs, and perceived inadequacy to meet higher levels of production required for Five Year Defense Plan explosive buys. How old is the existing system and to what extent have components of the system been replaced?

A. - The existing system has been functioning since 1942.

- Bucket elevator belts, buckets, bearing, and casing sheet metal parts have been replaced as needed.

- The coal crusher requires annual refurbishment. This consists of a scrub out of the main roll and replacement of bearings and sheet metal parts as needed.

- The car shaker requires periodic maintenance and parts replacement due to the violent nature of its service.

- No wholesale replacement of any complete component such as the crusher or bucket elevator has ever been made.

Q. What is the actual percentage of downtime attributed to the coal handling system and what specifically are the causes for this downtime?

A. - There has never been an interruption to steam service at Holston AAP. The term downtime, therefore, relates only to a particular boiler outage or an equipment malfunction in the coal handling system. Each boiler has a storage bunker (silo) capable of providing 20 hours uninterrupted coal supply. Such storage is typical throughout industry. This storage acts as a buffer against coal handling equipment outages. The maximum time allowed for coal handling equipment repairs is thus 20 hours. It is estimated that downtime of the coal handling equipment averages 1 hour per week or approximately 6 percent. What is significant about the downtime is not the frequency, but the increasing difficulty of making repairs within a 20 hours period on 42 year old equipment built with 1942 EPA technology.

- The causes of the downtime were also mentioned in the answers to Question 1a.

Q. What is the total steam output capability (include all boilers), the current percentage of this steam capacity being used in FY84, and the percentage required to meet FY89 requirements?

A. - Total Available Capacity 1,470,000 lb/hr

- Percent of Available Capacity Required in FY84 19.3%

- Percent of Available Capacity Required in FY89 66.6%

Q. What quantity of steam is required to meet mobilization requirements?

A. - Total Steam Required at Mobilization 1,454,177 lb/hr
 Percent of Available Capacity 98.9%

Q. What additional effort is required to make all steam plant boilers operational and what is the estimated cost?

A. - Currently, three gas fired boilers are laid away and two pulverized coal (PC) fired boulders are being laid away. The Five Year Defense Plan calls for a new electrostatic precipitator and new ash handling system to be installed on one PC boiler.

- Reactivate 3 gas-fired boilers	\$ 472,000
Reactivate 3 PC boilers	135,000
Replace ash handling system and electrostatic precipitators (3 boilers)	10,836,000
Miscellaneous start-up costs, 10,000 each boiler (6 boilers)	60,000
	\$11,503,000 (FY84\$)

Q. To what extent does the Army plan to modernize the steam plant in the future and what modernization efforts have taken place?

A. - Modernization Plans:

o Replace electrostatic precipitator and ash handling system, boiler #5, bldg 200, area B steam plant. (FY85 Project 5852447)

o Install improved boiler and ash handling controls. (FY85 Project 5852447)

o Past Modernization Work:

- Install overfire air injection systems to improve boiler performance.

- Replace firecrack inside boilers.

- Replace waterwall tubes inside boilers.

- Install electrostatic precipitators.

- Install railroad car shakers

- Install fly ash collection system and backhouses.

- Install ash handling system.

- Install improved coal chutes to stokers.

Q. Provide a comparison of the age, downtime, and increased maintenance costs attributable to the steam plant boilers, precipitators, etc. to that attributed to the coal handling system.

A. - Everything associated with the steam plants including the existing coal handling system is 1942 vintage except the items modernized as indicated in the answers to questions above.

- Boilers themselves are traditionally more reliable than coal handling systems. Therefore, downtime of boilers would be expected to be less than 6 percent.

- Maintenance costs per breakdown are difficult to compare because there is no interruption or cause and effect between boiler breakdowns and coal handling equipment breakdowns unless the 20 hour limit is exceeded as mentioned in the answer to question above.

- Generally speaking, boilers are more durable than coal handling systems. A typical steam plant boiler would be expected to have at least twice the life of a coal handling system. Normal coal handling systems have an expected life of 15-25 years.

- The steam plants at Holston AAP are vital to the production of explosives. Without steam, no explosives can be manufactured. The degradation of the coal handling systems seriously threatens the ability of the steam plant to provide the quantities of steam required on demand.

- Maintenance costs recorded for steam plants includes costs for labor and materials for coal handling equipment repairs.

Q. The Holston steam plants were designed to use "modified stoker coal", however, Holston is procuring about 80 percent "run-of-mine" coal. To what extent does this less expensive coal contribute to the downtime and increased maintenance costs?

A. - Point of clarification: Holston AAP currently procures and burns 80-85 percent modified stoker grade coal. This is the grade of coal that the Holston AAP steam plants were designed to burn.

- Run-of-Mine (ROM) coal can be a major contributor to increased downtime and maintenance costs for coal handling systems which are designed to handle modified stoker coal.

- Holston AAP presently procures and burns ROM coal for only two reasons: price or availability.

o When the price differential between ROM and modified stoker coal is less than \$5 per ton, studies made of boiler efficiencies have shown that modified stoker coal should be bought and burned. The increased boiler efficiency "pays" for the extra cost of the higher priced modified stoker coal. When the price differential is greater than \$5 per ton, ROM coal should be burned due to the costs involved.

o Current coal mining practice in most instances relies on use of a continuous mining device. This continuous mining generates ROM (high fines) coal. Since the industry is swiftly moving toward utilization of the continuous miner, availability of other grades of coal is reduced and price goes up. The poor availability of modified stoker coal and its high price occasionally makes it a necessity that Holston AAP procure and burn ROM coal.

Q. Compare the BTU content of the stoker coal and the ROM coal and provide total quantities of each type coal to meet FY84, 85, and MOB requirements.

A.

	<u>MODIFIED STOKER</u>	<u>ANNUAL COST</u>	<u>ROM</u>	<u>ANNUAL COST</u>
BTU/LB	13,826	\$	13,527	\$
COST/TON	42.08		39.13	
FY84	109,500 Ton/Yr	4,607,760	111,868	4,377,390
FY85	193,085 Ton/Yr	8,125,020	197,261	7,718,820
MOB	803,000 Ton/Yr		820,366	

Q. Provide a cost comparison between procuring the more expensive coal including the associated reduction in downtime and maintenance costs vs. procuring the less expensive coal and the associated increased costs.

A. - Modified stoker coal - cost averaged \$42.08 per ton for a selected 1,000 ton shipment.

- Run-of-mine coal - cost average \$39.13 per ton for a selected 1,000 ton shipment.

NOTE: There is no data available which compares operating costs using the two grades of coal.

Q. The Army believes that replacing the existing coal handling system with an entirely different concept is more cost effective than replacing the existing system. The existing system would keep the plant operational while modernization efforts are ongoing and later be used as a back-up system. What is the estimated cost of replacing the existing system being used?

A. - The architectural/engineering (A/E) firm, Lutz, Daily & Brain, estimated the cost to replace in like kind the existing system. The cost was published by the A/E in a concept study report for Project 5852199. The details are summarized below:

One-for-One Replacement of Existing Equipment

Capital Cost \$975,000 (FY84 \$)

NOTE: This concept was ranked poorest overall by the A/E when compared to four other options on a total life cycle cost analysis basis.

Life Cycle Cost (25 Years) Discounted

Replace in kind \$15,867,000

Project Approach \$11,160,000

Q. Do all steam boilers operate on coal and therefore depend on the coal handling system or are there standby gas or oil boilers which could be used while the plant's coal handling system is being replaced?

A. - There are two steam plants at Holston AAP. One at Area A and one at Area B. Area A has seven coal fired boilers with one boiler capable of reduced burn rate on oil for short periods (12-14 hours due to oil storage capacity). No other oil burning capacity exists at Area A. Area B has six coal fired boilers and three natural gas fired boilers. Of the six coal fired boilers, two can be operated on oil for short periods (12-14 hours due to oil storage capacity). The three natural gas fired boilers can be operated on #6 fuel oil only for which there exists a one million gallon storage tank on site (10 day max operating capability).

Q. The estimated cost for this project is \$9 million based on a concept design. The basis for this estimated cost does not meet Congressional policy requiring estimates based on final designs. What degree of confidence can be placed on this \$9 million estimate and what potential variance exists?

A. - The Corps of Engineers places a high degree of confidence that this project can be accomplished within \$9 million, even though the estimate is based on approximately a 15 percent design effort. During two study efforts, the AE performed extensive research on establishing the cost estimates for this project. Cost data was obtained from several reliable sources:

- o Coal Handling System - Cost data was received from nationally recognized coal handling contractors.

- o Yard Piping - Cost data was compiled from other similar coal handling system projects.

- o Structures - Cost data was compiled from other similar projects and was applied to site investigation work that was performed at Holston AAP.

- o Electrical - Cost data was compiled from experienced equipment manufacturers, recent actual cost data, electrical cost data from projects of a similar nature and "Means" electrical and mechanical cost data references.

Two areas of potential cost variance are the bidding climate at the time of advertisement and subsurface conditions at the elevator location.

Q. Provide the major cost elements and insight into how the estimated costs for the elements were derived.

A. - The following table summarizes the construction cost estimates:

<u>Item</u>	<u>Construction Cost Estimates</u>
Coal Handling System	\$ 4,306
Structures & Site Work	2,219
Electrical	1,033

o The coal handling system position has been estimated using cost data which we have received from nationally recognized coal handling contractors. Structure portion was provided by the Mobile District Office. Subsoil conditions are approximately the same as areas A and B. Blasting will be needed for removal of rock when excavating the foundations for deeper structures. Hard rock is reported to be 14 to 16 feet below the surface. Also, cost data from other similar projects has been used to generate the construction cost estimates.

o Electrical

- General: The cost estimates for the electrical work has been developed from cost data that has been provided by experienced equipment manufacturers. The 1983 Means Mechanical and Electrical Cost Data Handbook, and cost data which we have available from other similar projects have also been utilized.

- Electrical Supply: The electrical supply cost estimate includes the demolition of the existing overhead 15 kv class distribution circuits and the poles and pole line hardware necessary to reroute these lines. The cost estimate for this work is based on recent actual cost data. Electrical supply will be required for area B only.

- Electrical Equipment: the electrical equipment cost estimate includes the 12.5 kv to 480 volt transformer and the 480 volt motor control centers. The cost of this equipment is based on providing one spare size 1 through size 5 starter as well as providing 10 percent spare space. The cost estimate for this equipment is based on manufacturer's cost estimates and other current cost data. New electrical equipment will be required for area A and area B.

- Lighting: The coal handling lighting consists of all lighting transformers, lighting panels, fixtures, switches, outlets, conduit and wire required to light the conveyor walkways, hopper, and coal crusher/transfer house. All lights are controlled by a switch. The estimate does include all explosion proof requirements of the National Electric Code. Cost estimates for lighting are based on manufacturer's data and Means Cost Data. New lighting requirements are required for area A and area B.

- Power Wiring: The power wiring consists of all grounding, electrical equipment installation, conductor, conduit, duct banks, testing, etc., associated with the coal handling system. Recent actual unit cost data from jobs of a similar nature and Means Mechanical and Electrical Cost Data were used to arrive at a cost. To arrive at the estimated dollar value for this item, the power or control circuits to an area were grouped in a single conduit and then each power and control circuit was estimated to run through 50 feet of conduit to the individual devices. The number of devices required for each conveyor or pieces of equipment as based on previous jobs of a similar nature.

Q. Provide rationale for requesting a waiver from the Congressional policy relative to final designs established in 1976 which was to ensure reliable cost estimates are available for programing and funding decisions.

A. - As indicated in the reply to question above, a waiver should be requested only where failure to execute a project has severe impact on readiness. It is the position of the Army that the RDX/HMX projects are sufficiently important to the national defense that the avoidance of a 2 to 3 year delay in initiation of construction is warranted. The Army is proposing a concurrent design and build effort. Fifteen percent of the final design has been completed by Nov 83, however, there is a need to keep this project in the FY85 funding program. The following items summarize the reason to support the project:

o The existing coal handling systems are over 40 years old. The age of the equipment and frequent lengthening repair time indicated that it should be nearing the end of its useful life.

o The quantity of coal to be handled will increase 175 percent in FY85 and almost 400 percent by FY88, which will make it increasingly difficult to maintain steam service with existing equipment.

o A catastrophic failure of the coal handling equipment which could not be repaired could shut down the only producer of RDX/HMX explosives in the US.

Q. The \$9 million estimate includes steam plant A and steam plant B and some associated modernization efforts such as elevators. Provide a brief synopsis of work planned at each plant, the rationale for any variances in scope and the estimated costs.

- A. - Area A: a. New unloading hopper
b. New crusher
c. New Rocket elevator
d. New overplant conveyor
- Area B: a. New underground unloading hopper
b. New rail spur with car thaw area
c. New belt seal, magnetic separator and screen/crusher
d. New consolidated long term coal storage pile
e. New conveyor from unloading building to crusher/transfer hands
f. New conveyor from crusher/transfer house
g. New rail car reload ramp

As a result of the two extensive studies performed by the AE and the subsequent thorough review it is anticipated that the present scope of work should result in minimal variation between the present scope and the final design. Similarly, it is anticipated that due to the high degree of confidence in the current cost estimate no variation in estimated costs is expected.

Q. What is the estimated cost for the elevators, the primary justification for them and estimated costs for any other peripheral equipment of this type?

A. - A freight elevator is required at each steam plant, areas A and B. The cost estimate for the elevators is \$557,000. The following items are the primary justification:

- o Assist construction of coal handling improvements.
- o Eliminate safety hazards, correct OSHA violations and avoid legal liability.
- o Improve productivity at the steam plants.
- o Assist coal sampling.
- o Accommodate increased activity projected under the current Five Year Defense Plan.

This project does not require any other peripheral equipment.

Reactivation, Restoration, Realignment
and Deficiency Corrections
Project 5852447B

Q. The Plant officials original reaction to increased production buys was they were beyond the plant's capacity. However, further analysis revealed if certain actions were taken immediately the plant could produce the quantities required. Does Holston have a deferred deficiency list based on an industrial preparedness plan for mobilization requirements? If so, was

it used by plant officials in their analysis, if not, how were the necessary actions identified?

A. - Holston does have a deferred deficiency list based on an industrial preparedness plan for mobilization requirements. It was used by the plant officials in their analysis.

Q. Please specify the amount of time and resources expended on the analysis which resulted in this request?

A. - Approximately 1600 manhours (\$80,000) were expended on the analysis.

Q. This project, is the second of a three year effort to increase Holston's production capability to meet Five Year Defense Plan and stockpile requirements. The fiscal year 1984 request for the first year of this effort was not approved during the regular budget process, but as a fiscal year 1984 late start project. What was the rationale for spreading this effort over a three year period?

A. - Project 58X2447 was structured into a three year effort to systematically effect the work needed to render Holston AAP's manufacturing facilities responsive to the FYDP requirements at the anticipated completion time of each of the three efforts.

Q. Explain the relationship between the fiscal year 1984, 1985, and 1986 projects. What impact does the late start of the fiscal year 1984 project have on the fiscal year 1985 project?

A. - The FY84 project will focus on the reactivation/modification of the Area B acids facility plus Lines 1, 2, 3, 4, and 6 to provide the additional capability for producing composition B, C-4, A compositions, PBX's and LX-14 needed in the FY86-87 time frame. The FY85 project will perform the necessary work on the Area B acids facilities plus Lines 1, 4, 5, and 7 to provide the capability to produce additional LX-14, Bulk HMX and A compositions needed in the FY88 and beyond time frame. The FY86 project will procure the necessary automotive equipment for material handling. Each year's effort is independent. As stated above, each year will respond to the FYDP requirements at the completion of that year's effort and is a separate and distinct effort.

Q. Specify the reasons for the fiscal year 1984 project being a late start project?

A. - Project 58X2447 was recently (Dec 83) formulated to respond to the FYDP requirements established in the late fall of CY83. The first year's effort (FY84) defines those efforts that must be initiated immediately to insure FY86-87 manufacturing capability consistent with FYDP requirements. Accordingly, the FY84 project was planned as a late start project to permit execution within the time constraints dictated by the new production needs.

Q. Project officials stated that cost estimates are empirical, based upon previously completed similar work and are subject to change upon completion of design and final cost estimation. Are all of the cost estimates empirical, based upon previously completed work? If not, what are other cost estimates based upon?

A. - Approximately 70% of the cost estimates are empirical projections based upon previously completed similar type work. The remaining 30% are based upon engineering projections from a variety of respected sources such as scientific handbooks, cost estimating references, vendor quotes, etc. Estimates are trackable.

Q. To what extent are the cost estimates subject to change?

A. - Final design costs are expected to be within 20% of the projections currently being used.

Q. A waiver for the final design requirement for this project is being requested based on its urgency to satisfy Five Year Defense Plan buys which the Defense Review Board states is needed to store RDX/HMX explosives. What assurances do you have that the Five Year Defense Plan requirements

will not be changed before or shortly after the completion of these projects?

A. - It is the best estimate of requirements for the current FYDP. As each year of FYDP progresses there are refinements to the requirements for various reasons.

Q. Has a waiver of the final design requirement ever been granted before, if so for what reasons?

A. - To the best of our knowledge, a waiver has not been previously granted. We believe that this project should be granted an exception based upon the following:

- o The effort is needed to satisfy recently developed FYDP requirements.

- o The work is needed on an immediate basis which precludes compliance with the normal congressional design policy.

- o Estimates are based upon sound techniques which we believe have provided a reliable cost projection.

- o There will be a severe impact on readiness if planned FYDP quantities cannot be produced.

M223 Fuze Hi-Speed Automated Assembly
Project 5853551

Q. What initiated the development of this new automated equipment for the M223 fuze assembly line?

A. - High production requirements and 16 percent potential savings were the reasons to initiate the development of this new automated equipment for M223 fuze assembly line.

Q. When will the prototype automated assembly machine be tested on the production line and is it critical that this equipment operates properly in a production environment?

A. - The prototype automated M223 fuze assembly line will be tested in production in August 1984.

Q. Why is the Army requesting funds to duplicate the M223 fuze automated assembly equipment prior to prototype production testing and to duplicate fuze assembly equipment which has not yet been developed?

A. - Army is requesting funds prior to prototype production testing. However, testing will be complete prior to budget execution. Probability of success is very high.

Q. With this project and the follow on fiscal year 1987 facility project what will be the monthly production rate the Army expects to obtain on a one shift, eight hours, five days a week basis?

A. - The Army expects to obtain an additional 5,322,000 fuzes per month on a one shift, eight hours, five day a week basis (1-8-5) as a result of the FY 1985 and FY 1987 projects. Current capacity plus planned capacity from the two proposed projects will result in 10,820,000 fuzes per month on a 1-8-5 basis.

Q. Fuze hand lines currently inactive will become activated during mobilization. How many M223 hand lines are in layaway and what are their total monthly production capability?

A. - There are two hand lines currently inactive: AVCO and Honeywell. Their capacity will be 718,000 fuzes per month on a 1-8-5 shift basis.

Q. Is there sufficient capacity available to meet production in the current plant POM period? If yes, why is additional capacity being added?

A. - Present FYDP quantities peak out at 13,000,000, fuzes per month in FY 88. Current available capacity with four active producers (EMCO, E. Walters, Dayron, and REDM) is 4,780,000 per month 1-8-5 shift basis. Three shifts would be required to produce FY 88 buys.

Q. Is the capacity of load, assemble, and pack facilities for items which use the M223 fuze large enough to handle the output from existing M223 facilities?

A. - Yes, we have the capacity to load, assemble, and pack (LAP) 12.456 million M42/M46 grenades per month on a 1-8-5 shift basis.

Industrial Base

Q. In February 1983 GAO issued a report titled "Observations Regarding the Ammunition Production Base." This report highlighted several problems with the base and OSD concurred with the GAO observations. What actions has the Army taken to address these problems?

A. - The specific problems highlighted by the 1 Feb 83 GAO Report titled "Observations Regarding the Ammunition Production Base" included:

- o Mobilization capacity shortfalls and imbalances.
- o Existing facilities could not be reactivated as quickly as desired because of equipment voids and deficiencies.

The Army has taken several actions in addressing these problems:

- o The Army has completed and provided a report to the Congressional Committees on Armed Services and Appropriations of the Senate and the House of Representatives on the status of production equipment, evaluation of the capability of facilities to produce the quantities and types of ammunition requested in the Five Year Defense Plan, and an estimate of the cost of developing and maintaining an ammunition production base capable of satisfying the anticipated production requirement throughout the remainder of this century. The report included recommendations to the Congressional committees for addressing the ammunition production base problems.

- o The Army completed a series of studies evaluating technology, requirement, and the production base for expanding RDX and HMX capability and will submit recommendations to Congress addressing the critical shortage in the explosive RDX/HMX area.

- o In accordance with Defense guidance, production base sizing for new munitions is planned to meet Five Year Defense Plan requirements on a 1-8-5 basis and balancing of capability is considered.

- o Army has addressed costs required to correct FYDP, surge, and sustainability shortfalls for specific identified critical items in response to Defense guidance. Unfortunately, these corrections are not being accomplished because of a lack of funding.

- o The Army is soliciting mobilization base planning agreements with industry but there are no funded Government facility projects to satisfy only mobilization requirement shortfalls.

- o Existing facilities with equipment voids, production shortfalls, and deficiencies have been identified. The Army continues to correct identified deficiencies of the inactive base which qualify for Operation, Maintenance, Army funding, when available. The Army programmed \$30 million per year for Production Base Readiness Improvement in the POM to correct identified deficiencies, but it did not achieve a sufficiently high priority to be funded.

Q. Do OSD production base investment policies preclude addressing these problems?

A. - Current Defense Guidance does provide the Army an opportunity to address these problems, however, they remain unfunded as they did not compete favorably with other programs.

SUBCOMMITTEE RECESS

Senator RUDMAN. I believe that is probably all I have and I want to thank you for your very candid, forthright, very informative answers and we will have the subcommittee stand in recess at the call of the Chair.

[Whereupon, at 12 o'clock p.m., Thursday, April 12, the subcommittee was recessed, to reconvene at the call of the Chair.]



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